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Stockpile and Post-Remedial
Excavation Confirmation Report
Parcel A, Report No. 5

Boeing Realty Corporation C-6 Facility
Los Angeles, California

March 1998



MONTGOMERY WATSON

**STOCKPILE AND POST-REMEDIAL
EXCAVATION CONFIRMATION REPORT
PARCEL A
REPORT NO. 5**

**BOEING REALTY CORPORATION C-6 FACILITY
LOS ANGELES, CALIFORNIA**

March 1998

Prepared For:

**BOEING REALTY CORPORATION
4060 Lakewood Boulevard, 6th Floor
Long Beach, California 90808**

Prepared By:

**MONTGOMERY WATSON
250 North Madison Avenue
Pasadena, California 91101**

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SECTION 1.0

INTRODUCTION

In October 1996, Montgomery Watson (Montgomery) was retained by McDonnell Douglas Realty Company, now the Boeing Realty Corporation (BRC), to assist with the redevelopment of Parcel A (the Site) of their C-6 Facility located in Los Angeles, California. Figure 1 presents the C-6 Facility. Figure 2 delineates the Site. The Site was formerly used to manufacture and store aircraft parts.

1.1 OVERVIEW

The Site consists of the northernmost quarter of the C-6 Facility, encompassing approximately 50 acres. Demolition of the following buildings has occurred: Building 29, 33, 34, 36, 37, 40, 41, 43/44, 45, 57, 58, 61, 66-A, and 67.

Information gathered during the data compilation and evaluation phase of this project indicated the presence of petroleum products and other chemicals of concern in the surface and subsurface.

A soil sampling and remedial excavation effort was conducted in conjunction with the removal of foundations, slabs, and below-ground structures. The purpose of this effort was to assess soil quality and remove soil affected with petroleum hydrocarbons and other chemicals of concern in preparation for redevelopment of the Site. Soil which was determined to be affected with petroleum hydrocarbons and other chemicals was excavated and stockpiled at the Site. Confirmation samples were collected along the walls and floor of each remedial excavation to confirm that the surface soil (upper 12 feet) met soil screening criteria.

Stockpiled soil and confirmation samples discussed in this report were generated from remedial excavations conducted in the open area located east of Building 37. For convenience, this area is referred to as "Open Area No. 1" in this report.

1.2 PURPOSE AND OBJECTIVES

The lead agency for this project is the Los Angeles Regional Water Quality Control Board (RWQCB). The process of screening excavated soil and confirming *in situ* soil quality as presented in this document has been approved by the RWQCB. Following the initial review and implementation of this process, the RWQCB has allowed BRC to undertake excavation and backfilling operations without intermittent agency review. All BRC decisions based upon the approved soil screening process are documented for final agency review and approval. This approach was developed to expedite the soil quality evaluation process, and this report has been prepared to document the process used by BRC to evaluate excavated and residual soil at Site locations discussed herein.

Specifically, the purpose and objectives of this report are:

- 1) To document the quality of the stockpiled soil generated from remedial excavations according to the Facility-wide soil screening criteria, and the process by which the stockpiled soils were divided into two categories: (a) soils requiring treatment or off-site disposal, and (b) soils suitable for use as construction backfill at the Site.
- 2) To document that surface soil (upper 12 feet) in each remedial excavation meets the established soil screening criteria.

SECTION 2.0

OPEN AREA NO. 1 REMEDIAL EXCAVATIONS

Open Area No. 1 is located along the eastern portion of the Site, east of the Building 37 and Building 41 footprints extending to the Normandie Avenue property boundary. Open Area No. 1 was so designated because of its historical absence of structures, except for the former Building 43/44 water tanks in the northeast corner. Open Area No. 1 formerly included the Gravel Yard, which was used for storage of miscellaneous materials and parts from the manufacturing operations of the Facility. The Facility storm drain outfall to the storm sewer is located near the northeast corner of the area. Historically, a railroad spur crossed Open Area No. 1 trending from south to north.

Building 41 was formerly used as a boiler house. The water tanks located at the former Building 43/44 in the northeast corner of Open Area No. 1 were used to store diesel fuel oil which was pumped into Building 41 through buried product pipelines. These tanks were converted from diesel storage to water tanks (part of the C-6 Facility's fire suppression system) approximately 25 years ago. The abandoned product lines leading from the tanks to Building 41 were discovered during the demolition process, and remedial excavations discussed in this report were conducted to remove primarily hydrocarbon-affected soil associated with releases from these product lines. Remedial excavations discussed in this report were conducted east of former Building 37 within Open Area No. 1.

The location of each remedial excavation discussed in this report is presented in Figure 3. The 20-foot by 20-foot grid used to reference Building 37 remedial excavations was extended into Open Area No. 1 as presented in Figure 3 for the same purpose. Remedial excavations were recorded using the following nomenclature:

Open Area No. (OA#) - Remedial Excavation (RE) - Chronological Number (#)
e.g., OA1-RE-4

Pertinent information related to the remedial excavations and the associated stockpiled soil discussed in this report is presented below. The locations of each stockpile are presented in Figure 4 through Figure 7.

Excavation/Stockpile(s)	Approximate Volume	Date of Excavation	Stockpile Location(s)
OA1-RE-4 / A — J	2,500 cu yds total	21 Jul 97 — 23 Jul 97	Within and west of Building 37 footprint
OA1-RE-5 / A — J	2,500 cu yds total	23 Jul 97 — 25 Jul 97	West of Building 37 footprint and within and north of Building 34 footprint
OA1-RE-6 / A — J	2,500 cu yds total	25 Jul 97 — 29 Jul 97	West of Building 37 footprint, within Building 34 footprint, and west of Building 34 footprint

2.1 SOIL SAMPLING

Hot spot sampling and confirmation sampling have been employed at Open Area No. 1. Detailed procedures for these activities are outlined in the *Sampling and Analysis Plan for Demolition Activities at the Douglas Aircraft Company C-6 Facility* prepared by Integrated Environmental Services, Inc. (IESI, 1997(a)) which has been reviewed and approved by the RWQCB. In addition, stockpile sampling was performed on the excavated material. These procedures can be summarized as follows:

2.1.1 Hot Spot Sampling

Hot spot sampling was conducted at predetermined locations where former items of concern were located (e.g., product lines), and at other locations where demolition activities revealed soil which may have been affected by petroleum hydrocarbons or other chemicals of concern.

Hot spot samples were collected by first exposing “fresh” soil beneath the surface using a stainless steel utensil or similar device. A photoionization detector (PID) was used to measure headspace organic vapor concentrations in the freshly exposed soil at each location. Soil samples were collected for analysis where at least one of the following conditions existed: 1) the headspace volatile organic compound (VOC) reading exceeded 5 ppm, (2) areas where staining of the soil was visible, or (3) areas where odors were noticeable.

Soil samples were collected for analysis in pre-cleaned, stainless steel sleeves by driving the sleeve into the soil with a rubber mallet or drive sampler. The ends of the sleeves were then covered with Teflon film and secured with plastic end caps. A unique sample identification using the following nomenclature was written in indelible ink on a sample label and attached to the sleeve:

Product Line (PL) - Grab Sample (GS) - Chronological Number (#) - Sample Depth (feet)
e.g., PL-GS-5-2.5'

Sample sleeves were placed in a cooler with blue ice and transported under chain-of-custody to a State-certified laboratory for analysis. Hot spot samples have been analyzed according to the analytical schedule presented in Table 1.

Hot spot sample locations discussed in this report have been subsequently excavated and data collected from these samples are considered representative of the corresponding stockpile soil quality.

2.1.2 Stockpile Sampling

Excavated soil was placed in stockpiles each consisting of approximately 250 cubic yards of soil. Generally, stockpile samples were collected at a frequency of approximately one sample per stockpile. Stockpile samples were collected from the most noticeably affected soil within the stockpile. Samples were collected by using a shovel to cut vertically into the side of a stockpile at each sample location to expose "fresh" soil; samples were then collected from the exposed vertical wall and headspace VOC concentrations were measured using the PID.

In a letter from IESI to the RWQCB dated August 6, 1997, the RWQCB concurred with a revised analytical sampling program as follows: stockpile soil samples were collected for analysis when PID readings were equal to or greater than 50 ppm at any stockpile; however, at least one sample per four consecutive stockpiles (1000 cubic yards) was collected if PID readings in each of the four consecutive stockpiles was less than 50 ppm. This revised sampling plan dictated which stockpiles were sampled.

Soil samples were collected for analysis in pre-cleaned, stainless steel sleeves by driving the sleeve into the soil with a rubber mallet or drive sampler. The ends of the sleeves were then covered with Teflon film and secured with plastic end caps. A unique sample identification using the following nomenclature was written in indelible ink on a sample label and attached to the sleeve:

Open Area No. (OA#) - Remedial Excavation No.(RE#) - Stockpile Chronological Number (SP#)

e.g., OA1-RE4-SP3

Sample sleeves were placed in a cooler with blue ice and transported under chain-of-custody to a State-certified laboratory for analysis.

Stockpile samples have been analyzed according to the analytical schedule presented in Table 1.

2.1.3 Confirmation Sampling

Confirmation sampling was conducted to ensure that residual surface soil (upper 12 feet) met soil screening criteria at each excavation. Confirmation sampling was conducted at a

frequency of at least one sample location each 40 feet along the walls and floor of each excavation.

Soil removal continued at a particular location until the following conditions were met: 1) the headspace VOC reading in freshly exposed soil was less than or equal to 5 ppm, and soil staining was not visible, and odors were not noticeable, or 2) the maximum excavation depth of 12 feet had been reached. A confirmation sample was collected when these conditions were met. Iterations of additional soil excavation were conducted as required until confirmation sample analytical data indicated that *in situ* soil quality met the soil screening criteria established in Section 3.1 of this report, or the maximum excavation depth of 12 feet had been reached.

Confirmation soil samples were collected by first exposing “fresh” soil beneath the surface of a wall and floor of an excavation using a stainless steel utensil or similar device. Soil samples were collected for analysis in pre-cleaned, stainless steel sleeves by driving the sleeve into the soil with a rubber mallet or drive sampler. The ends of the sleeves were then covered with Teflon film and secured with plastic end caps. A unique sample identification using the following nomenclature was written in indelible ink on a sample label and attached to the sleeve:

Open Area No. (OA#) - Grab Sample (GS) - Chronological Number (#) - Sample Depth (feet)

e.g., OA1-GS-42-3'

Sample sleeves were placed in a cooler with blue ice and transported under chain-of-custody to a State-certified laboratory for analysis. Confirmation samples have been analyzed according to the analytical schedule presented in Table 1; however, some confirmation sample analyses were limited to target-specific chemicals once such analytes were identified either through previous sampling activities or historical site knowledge.

Some confirmation sample locations discussed in this report have been subsequently excavated and data collected from these samples are considered representative of the corresponding stockpile soil quality. Confirmation samples discussed in the Stockpile Soil Quality section of this report (Section 2.3) were those collected through “pot hole” excavations in the vicinity of the railroad spur. These confirmation samples were collected to: (1) assess whether impacted soil was present, and if so, (2) to confirm the depth to clean, native soil.

Using a backhoe, soil was removed from “pot hole” excavations near the railroad spur to the depth of 4 feet where native soil was believed to occur based on PID readings, observations, and odor. Confirmation samples were collected in the soil brought to the surface in the backhoe bucket. Confirmation soil samples were collected by first exposing “fresh” soil using a stainless steel utensil or similar device. Soil samples were collected for analysis in pre-cleaned, stainless steel sleeves by driving the sleeve into the soil with a rubber mallet or drive sampler. The ends of the sleeves were then covered with Teflon film and secured with plastic end caps.

A unique sample identification using the following nomenclature was written in indelible ink on a sample label and attached to the sleeve:

Railroad Spur (RR) - Grab Sample (GS) - Chronological Number (#) - Sample Depth (feet)
e.g., RR-GS-23-4'

Sample sleeves were placed in a cooler with blue ice and transported under chain-of-custody to a State-certified laboratory and analyzed according to the analytical schedule presented in Table 1.

2.2 SOIL EXCAVATION

Remedial excavation to remove affected soil was conducted when one of the following conditions was discovered: (1) elevated PID readings greater than 5 ppm in hot spot samples, (2) visible staining, and (3) noticeable odors. A conservative approach was employed such that soil which exhibited any of these characteristics was excavated and stockpiled.

Remedial excavations were performed using heavy equipment (excavators, front-end loaders, end-dump trucks) associated with the building demolition effort. Air monitoring in accordance with South Coast Air Quality Management District Rule 1166 was conducted throughout remedial excavation activities.

The maximum depth of any excavation was approximately 12 feet below grade. Excavated soil was segregated based on the location from where it was removed. Soil stockpiles were placed on asphalt or plastic sheeting, and covered with plastic sheeting to protect the soil from the elements. The locations of each stockpile are presented in Figure 4 through Figure 7.

2.3 STOCKPILE SOIL QUALITY

Soil removal at Open Area No. 1 began on July 14, 1997 due to PID readings, visual observations, and noticeable odors in soil in the vicinity of the product lines.

2.3.1 OA1-RE-4 Stockpiles A through J

Soil removal at remedial excavation OA1-RE-4 began on July 21, 1997 and was completed on July 23, 1997.

Approximately 2,500 cubic yards of stockpiled soil associated with this excavation was removed with an excavator, transported and stockpiled within and west of the Building 37 footprint as shown in Figure 4 (Stockpiles A through F) and Figure 5 (Stockpiles G1/G2 through J).

The following types of samples have been collected and analyzed to evaluate the soil quality in OA1-RE-4 Stockpiles A through J:

- Excavated hot spot samples
- Stockpile samples
- Excavated confirmation sample

Three hot spot samples were collected along the product line at locations presented in Figure 8 and the soil around these locations was later excavated. The analytical data for these samples are summarized in Table 2.

Three stockpile samples were collected. The locations of these samples are presented in Figure 4 and Figure 5. Analytical data for these samples are summarized in Table 3.

One confirmation sample was collected in the vicinity of the railroad spur at the location presented in Figure 8 and the soil around this location was later excavated. The analytical data for this sample are summarized in Table 4.

A complete set of laboratory analytical reports is presented in Appendix A-1.

2.3.2 OA1-RE-5 Stockpiles A through J

Soil removal at remedial excavation OA1-RE-5 began on July 23, 1997 and was completed on July 25, 1997.

Approximately 2,500 cubic yards of soil associated with this excavation was removed with an excavator, transported and stockpiled west of the Building 37 footprint, and within and north of the Building 34 footprint as presented in Figure 6 (Stockpiles A through J).

The following types of samples have been collected and analyzed to evaluate the soil quality in OA1-RE-5 Stockpiles A through J:

- Excavated hot spot sample
- Stockpile samples

One hot spot sample was collected along the product line at the location presented in Figure 8 and the soil around this location was later excavated. The analytical data for this sample are summarized in Table 5.

Three stockpile samples were collected. The locations of these samples are presented in Figure 6. Analytical data for these samples are summarized in Table 6.

A complete set of laboratory analytical reports is presented in Appendix A-2.

2.3.3 OA1-RE-6 Stockpiles A through J

Soil removal at remedial excavation OA1-RE-6 began on July 25, 1997 and was completed on July 29 1997.

Approximately 2,500 cubic yards of stockpiled soil associated with this additional excavation was removed with an excavator, transported and stockpiled west of the Building 37 footprint, within the Building 34 footprint, and west of the Building 34 footprint as shown in Figure 7 (Stockpiles A through J).

The following types of samples have been collected and analyzed to evaluate the soil quality in OA1-RE-6 Stockpiles A through J:

- Excavated hot spot samples
- Stockpile samples

Three hot spot samples were collected along the product line at locations presented in Figure 8 and the soil around these locations was later excavated. The analytical data for this sample are summarized in Table 7.

Three stockpile samples were collected. The locations of these samples are presented in Figure 7. Analytical data for these samples are summarized in Table 8.

A complete set of laboratory analytical reports is presented in Appendix A-3.

2.4 CONFIRMATION SAMPLING

2.4.1 OA1-RE-4 Remedial Excavation

Sixteen confirmation samples were collected at locations presented in Figure 9. Analytical data are summarized in Table 9. A complete set of analytical data is presented in Appendix B-1.

2.4.2 OA1-RE-5 Remedial Excavation

Six confirmation samples were collected at locations presented in Figure 10. The analytical data for these samples are summarized in Table 10. A complete set of laboratory analytical reports is presented in Appendix B-2.

2.4.3 OA1-RE-6 Remedial Excavation

Five confirmation samples were collected at locations presented in Figure 11. The analytical data for these samples are summarized in Table 11. A complete set of laboratory analytical reports is presented in Appendix B-3.

SECTION 3.0

DATA SUMMARIES AND CONCLUSIONS

This section presents soil screening criteria and the methodology used throughout the project to evaluate: (1) whether the soil stockpiles were suitable for use as backfill, or required treatment and/or off-site disposal, and (2) whether all affected soil has been removed, or if additional excavation of affected soil is warranted.

3.1 SOIL SCREENING CRITERIA

The soil screening criteria have been developed to satisfy two primary objectives: (1) residual concentrations in backfill material and surface soil must be below levels projected to impact underlying drinking water sources, and (2) residual concentration in backfill materials and surface soil must be below levels projected to potentially impact human health under future construction and commercial/industrial activities at the Site.

In accordance with these objectives, soil screening criteria were developed for both drinking water and human health protection. The development of these soil screening criteria is discussed below followed by a summary of how these values were implemented.

3.1.1 Drinking Water

The generalized hydrostratigraphic succession at the Site is as follows (Kennedy/Jenks, 1996; Dames & Moore, 1993; Department of Water Resources, 1961):

SURFACE

Bellflower Aquitard

Gage Aquifer

El Segundo Aquitard

Lynwood Aquifer

Depth to groundwater at the Site is approximately 65 feet. Hydrostratigraphic information from voluminous data collected at the neighboring Del Amo and Montrose Chemical Superfund Sites can be correlated with subsurface information collected at the Site. Hydrostratigraphic correlations suggest that the shallowest groundwater at the Site occurs in the Bellflower Aquitard, which is not recognized as a drinking water source in the region (Dames & Moore, 1993).

Although the depth to the top of the Gage Aquifer should vary from approximately 120 to 150 feet (from west to east) across the Site, the Gage Aquifer is not utilized as a source of drinking water in the region (Dames & Moore, 1993). Consequently, the shallowest drinking water resource in the region would therefore be the Lynwood Aquifer, projected to occur at the depths of approximately 210 to 240 feet (from west to east) across the Site.

Based on the depth to the first drinking water source, the following permissible concentrations to 12 feet below ground surface have been approved by the RWQCB:

Analytes	Permissible Level
TRPH	
C4 - C12	2,000 mg/kg
C13 - C22	10,000 mg/kg
C22+	50,000 mg/kg
Metals	TTLC and STLC

Notes:

TTLC: Total Threshold Limit Concentration per CCR Title 22.

STLC: Soluble Threshold Limit Concentration per CCR Title 22.

A Waste Extraction Test (WET) is performed on samples with total metal concentration(s) greater than 10 times the STLC but less than the TTLC, per CCR Title 22.

3.1.2 Human Health

Site-specific health-based soil screening values were developed by IESI using standard United States Environmental Protection Agency (USEPA) and California Environmental Protection Agency (Cal/EPA) methodologies. These values were derived assuming future commercial industrial land use with an interim construction phase. Each value will be used as a predictor of the risk posed by individual VOC, SVOC, PCB, and metal contaminants in soil. The additive effects of multiple contaminants have been accounted for by setting conservative target risk levels at 1×10^{-6} for carcinogens and 0.2 for toxicants. The final cumulative risks for all residual contaminants at the Site will be addressed in the post-remedial risk assessment. Table 12 summarizes the Site-specific health-based soil screening values to be used at the Site. A more detailed discussion of the methodologies used to derive these values has been presented in the *Health-Based Remediation Goals for Surface Soils* document (IESI, 1997(b)).

3.1.3 Evaluation Process

STOCKPILE SOIL

All soil excavated at the Site was subjected to the soil screening evaluation process depicted in Figure 12. This evaluation process incorporates both drinking water and human health-based criteria. Soils that failed any portion of this test were subjected to treatment prior to use as backfill, or were disposed of off-site. Once soils passed all aspects of the evaluation procedure, they were used for backfill.

Additionally, metal concentration(s) in stockpiled soils were used to further characterize the waste soil as follows:

- a) Stockpiled soils were classified as non-RCRA hazardous waste if representative soil samples contained any metal in total concentration equal to or greater than its respective TTLC per CCR Title 22.
- b) Representative soil samples were analyzed for soluble metal concentration using the Waste Extraction Test (WET) if the total concentration of any metal was equal to or greater than 10 times its respective STLC but less than its TTLC per CCR Title 22. Stockpiled soil was classified as non-RCRA hazardous waste if representative soil samples contained any metal in soluble concentration using the WET equal to or greater than its respective STLC per CCR Title 22.
- c) Additionally, stockpile soil samples which were analyzed using the WET were also analyzed for soluble metal concentrations using the Toxic Characteristic Leaching Procedure (TCLP). Stockpiled soil was classified as a RCRA characteristic hazardous waste if the soluble concentration of any metal using the TCLP was equal to or greater than the toxicity characteristic (TC) per CCR Title 22.

CONFIRMATION SAMPLES

All confirmation soil data at the Site was subjected to the soil screening evaluation process depicted in Figure 13. This evaluation process incorporates both drinking water and human health-based criteria. Additional soil excavation and/or treatment was conducted at locations where confirmation sample data failed any portion of this test, and the maximum excavation depth of 12 feet had not been reached.

3.2 STOCKPILE EVALUATIONS

Chemicals of concern at the Site can be summarized as follows:

- Petroleum hydrocarbons
- VOCs
- SVOCs
- PCBs
- Metals

The sampling and analysis program for remedial excavations discussed in this report was conservatively focused on these chemicals of concern by implementing the following analytical schedule:

- All samples were analyzed for TRPH and metals.
- All samples which contained TRPH in concentration greater than 10,000 mg/kg were subsequently analyzed for carbon chain length.
- All stockpile samples were additionally analyzed for VOCs and SVOCs.
- Stockpile samples were additionally analyzed for PCBs at a frequency of one sample per remedial excavation.
- Hot spot samples were additionally analyzed for VOCs, SVOCs, hydrocarbon fuel characterization, and PCBs.
- Railroad spur confirmation samples were analyzed for PCBs, and selectively analyzed for VOCs, SVOCs, and fuel characterization based on field observations.

Stockpile evaluations and dispositions are discussed below and summarized in Table 13.

3.2.1 OA1-RE-4 Stockpiles A through J

Soil samples (hot spot, stockpile, and confirmation) associated with Stockpiles A through J are cross-referenced in Table 13. Analytical data associated with these samples are presented in Table 2, Table 3, and Table 4. These data are summarized and evaluated below.

Petroleum Hydrocarbons: Hot spot sample PL-GS-3-3' (Stockpile A) contained the highest concentration of TRPH (18,000 mg/kg). This sample contained C4 - C12 hydrocarbons at the permissible limit, and contained C13 - C22 hydrocarbons above the permissible limit. All other samples contained TRPH in concentration below the permissible limit and therefore were not speciated.

VOCs: VOCs were detected in five samples; however, all VOC concentrations were below Site-specific health-based soil screening values.

SVOCs: SVOCs were detected in four samples; however, all SVOC concentrations were below Site-specific health-based soil screening values.

PCBs: PCBs were detected in sample OA1-RE4-SP1 in concentration of 0.035 mg/kg, which is below the Site-specific health-based soil screening value for aroclor 1254 of 0.870 mg/kg.

Metals: Hot spot sample PL-GS-3-3' (Stockpile A) and stockpile sample OA1-RE4-SP1 (Stockpile A) exceeded 10 times the STLC value for chromium; however, these samples did not meet or exceed the STLC when analyzed using the WET, or the TC when analyzed using the TCLP. None of the other samples met or exceeded TTLC, 10 times the STLC, or Site-specific health-based soil screening values.

Conclusion: Stockpile A exceeded permissible hydrocarbon chain concentrations and has been removed from the Site for proper disposal as non-hazardous waste. Non-hazardous waste disposal documentation is presented in Appendix C. The data show that Stockpiles B through J met the soil screening criteria presented in Section 3.1 of this report and therefore were used as backfill material.

3.2.2 OA1-RE-5 Stockpiles A through J

Soil samples (hot spot and stockpile) associated with Stockpiles A through J are cross-referenced in Table 13. Analytical data associated with these samples are presented in Table 5 and Table 6. These data are summarized and evaluated below.

Petroleum Hydrocarbons: Stockpile sample OA1-RE5-SP1 (Stockpile C) contained the highest concentration of TRPH (300 mg/kg). This concentration is below the permissible limit and therefore TRPH was not speciated.

VOCs: VOCs were detected in four samples; however, all VOC concentrations were below Site-specific health-based soil screening values.

SVOCs: SVOCs were detected in three samples; however, all SVOC concentrations were below Site-specific health-based soil screening values.

PCBs: PCBs were detected in stockpile sample OA1-RE5-SP1 in concentration of 0.038 mg/kg, which is below the Site-specific health-based soil screening value for aroclor 1254 of 0.870 mg/kg.

Metals: Stockpile sample OA1-RE5-SP3 (Stockpile J) exceeded 10 times the STLC for chromium; however, this sample did not meet or exceed the STLC when analyzed using

the WET, or the TC when analyzed using the TCLP. None of the other samples met or exceeded TTLC, 10 times the STLC, or Site-specific health-based soil screening values.

Conclusion: The data show that Stockpiles A through J met the soil screening criteria presented in Section 3.1 of this report and therefore were used as backfill material.

3.2.3 OA1-RE-6 Stockpiles A through J

Soil samples (hot spot and stockpile) associated with Stockpiles A through J are cross-referenced in Table 13. Analytical data associated with these samples are presented in Table 7 and Table 8. These data are summarized and evaluated below.

Petroleum Hydrocarbons: Hot spot sample PL-GS-8-3.5' (Stockpile H) contained the highest concentration of TRPH (20,000 mg/kg); however this sample did not exceed the permissible upper limit on any carbon chain range. Hot spot sample PL-GS-9-3.5' (Stockpile J) contained TRPH (16,000 mg/kg) and exceeded the permissible upper limit concentration on the C13 - C22 carbon chain range.

VOCs: VOCs were detected in five samples; however, all VOC concentrations were below Site-specific health-based soil screening values.

SVOCs: SVOCs were detected in five samples; however, all SVOC concentrations were below Site-specific health-based soil screening values.

PCBs: PCBs were detected in stockpile sample OA1-RE6-SP2 in concentration of 0.079 mg/kg, which is below the Site-specific health-based soil screening value for aroclor 1254 of 0.870 mg/kg.

Metals: Stockpile samples OA1-RE6-SP2 (Stockpile H) exceeded 10 times the STLC value for chromium; however, this sample did not meet or exceed the STLC when analyzed using the WET, or the TC when analyzed using the TCLP. None of the other samples met or exceeded TTLC, 10 times the STLC, or Site-specific health-based soil screening values.

Conclusion: Stockpile J exceeded a permissible hydrocarbon chain concentration and was removed from the Site for proper disposal as non-hazardous waste. Non-hazardous waste disposal documentation is presented in Appendix C. The data show that Stockpiles A, B, C, D, E, F, G, H, and I met the soil screening criteria presented in Section 3.1 of this report and therefore were used as backfill material.

3.3 IN-SITU SOIL QUALITY

The post-remedial excavation confirmation sampling analytical program (see Table 1) was designed to ensure that residual soils (upper 12 feet) meet the soil screening criteria.

3.3.1 OA1-RE-4 Remedial Excavation

Confirmation sample data are presented in Table 9 and can be summarized as follows:

Petroleum Hydrocarbons: The maximum concentration of TRPH in a confirmation sample collected from this remedial excavation was 9 mg/kg (sample OA1-GS-59-5'). This concentration is below the permissible limits for petroleum hydrocarbons and therefore TRPH was not speciated.

VOCs: Trichloroethene was detected in five samples; however, the maximum concentration reported was 0.014 mg/kg, which is below the Site-specific health-based soil screening value of 1,050 mg/kg.

SVOCs: SVOCs were not detected.

PCBs: PCBs were not detected.

Metals: All concentrations were below TTLC, 10 times the STLC, and Site-specific health-based soil screening values.

Conclusion: The data show that the residual soils in the OA1-RE-4 excavation met the soil screening criteria established in Section 3.1 of this report. Accordingly, this remedial excavation was backfilled.

3.3.2 OA1-RE-5 Remedial Excavation

Confirmation sample data are presented in Table 10 and can be summarized as follows:

Petroleum hydrocarbons: The maximum concentration of TRPH in a confirmation sample collected from this remedial excavation was 19 mg/kg (sample OA1-GS-67-5'). This concentration is below the permissible limit for petroleum hydrocarbons and therefore TRPH was not speciated.

VOCs: Four VOCs were detected in sample OA1-GS-60-6'; however, none were reported in concentration which met or exceeded respective Site-specific health-based soil screening values.

SVOCs: SVOCs were not detected.

PCBs: PCBs were not detected.

Metals: All concentrations were below TTLC, 10 times the STLC, and Site-specific health-based soil screening values.

Conclusion: The data show that the residual soils in the OA1-RE-5 excavation met the soil screening criteria established in Section 3.1 of this report. Accordingly, this remedial excavation was backfilled.

3.3.3 OA1-RE-6 Remedial Excavation

Confirmation sample data are presented in Table 11 and can be summarized as follows:

Petroleum hydrocarbons: The maximum concentration of TRPH in a confirmation sample collected from this remedial excavation was 6,000 mg/kg (sample OA1-GS-71-12'). This concentration is below the permissible limit for petroleum hydrocarbons and therefore TRPH was not speciated.

VOCs: A total of ten VOCs were detected; however, none were reported in concentration which met or exceeded Site-specific health-based soil screening values.

SVOCs: Four SVOCs were detected in sample OA1-GS-71-12'; however, none were reported in concentration which met or exceeded Site-specific health-based soil screening values.

PCBs: PCBs were not detected.

Metals: All concentrations were below TTLC, 10 times the STLC, and Site-specific health-based soil screening values.

Conclusion: The data show that the residual soils in the OA1-RE-6 excavation met the soil screening criteria established in Section 3.1 of this report. Accordingly, this remedial excavation was backfilled.

SECTION 4.0

REFERENCES

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Geraghty & Miller, Baseline Risk Assessment, International Light Metals Division Facility, Prepared for Lockheed Martin Corporation, March 1996.

Integrated Environmental Services, Inc., Sampling and Analysis Plan for Demolition Activities at the Douglas Aircraft Company C-6 Facility, 1997(a).

Integrated Environmental Services, Inc., Health-Based Remediation Goals for Surface Soils, 1997(b).

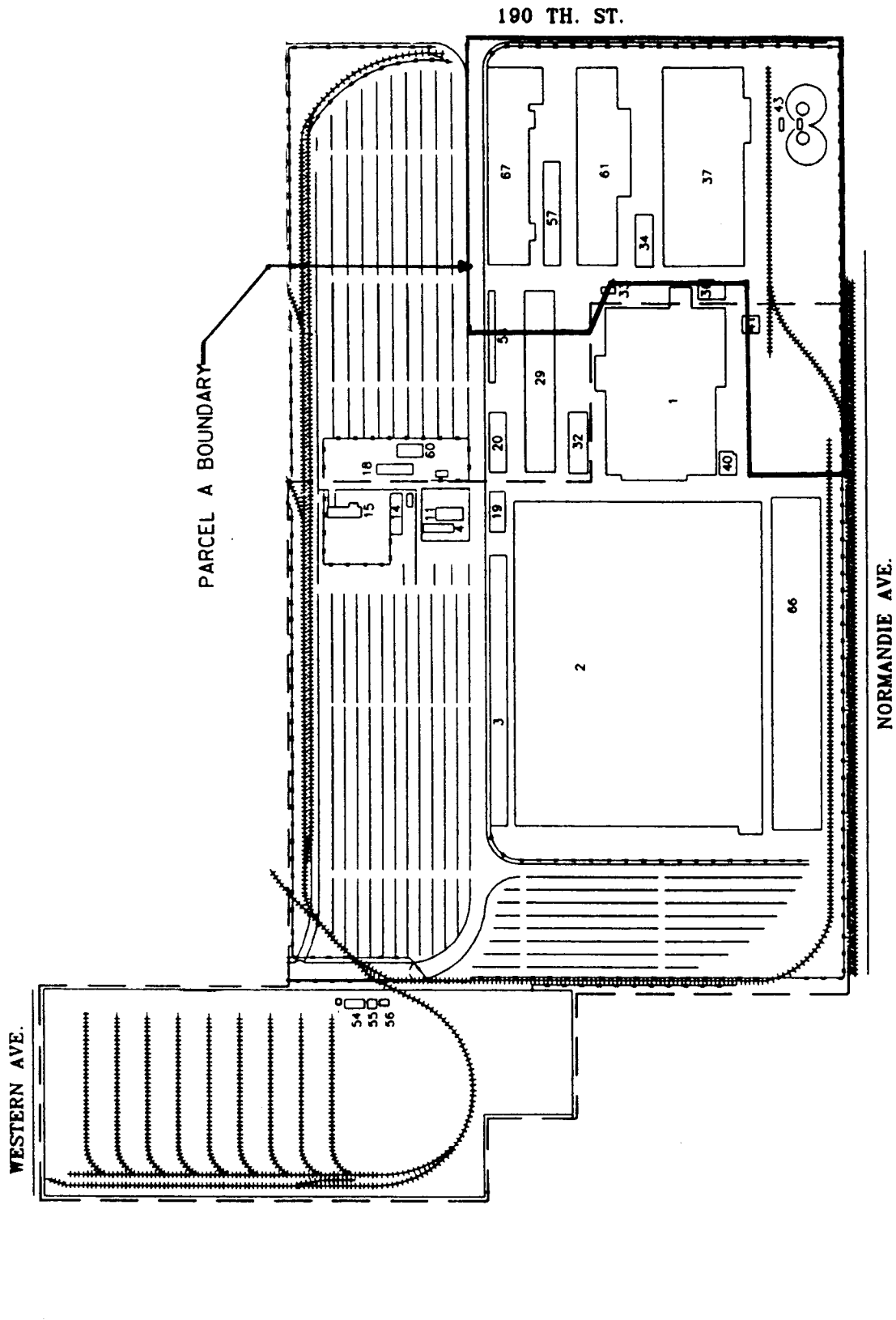
Kennedy/Jenks Consultants, Final Phase II Subsurface Investigation, Douglas Aircraft Company C-6 Facility, Parcel A, Torrance, California, June 5, 1996.

Figures

Figures



MONTGOMERY WATSON



MONTGOMERY WATSON

C-6 FACILITY MAP

FIG. 1

190TH STREET



BASE MAP DEVELOPED FROM TAIT & ASSOCIATES INC.
SURVEY DRAWING DATED 10/22/96.

JOB No. _____ FILE No. _____

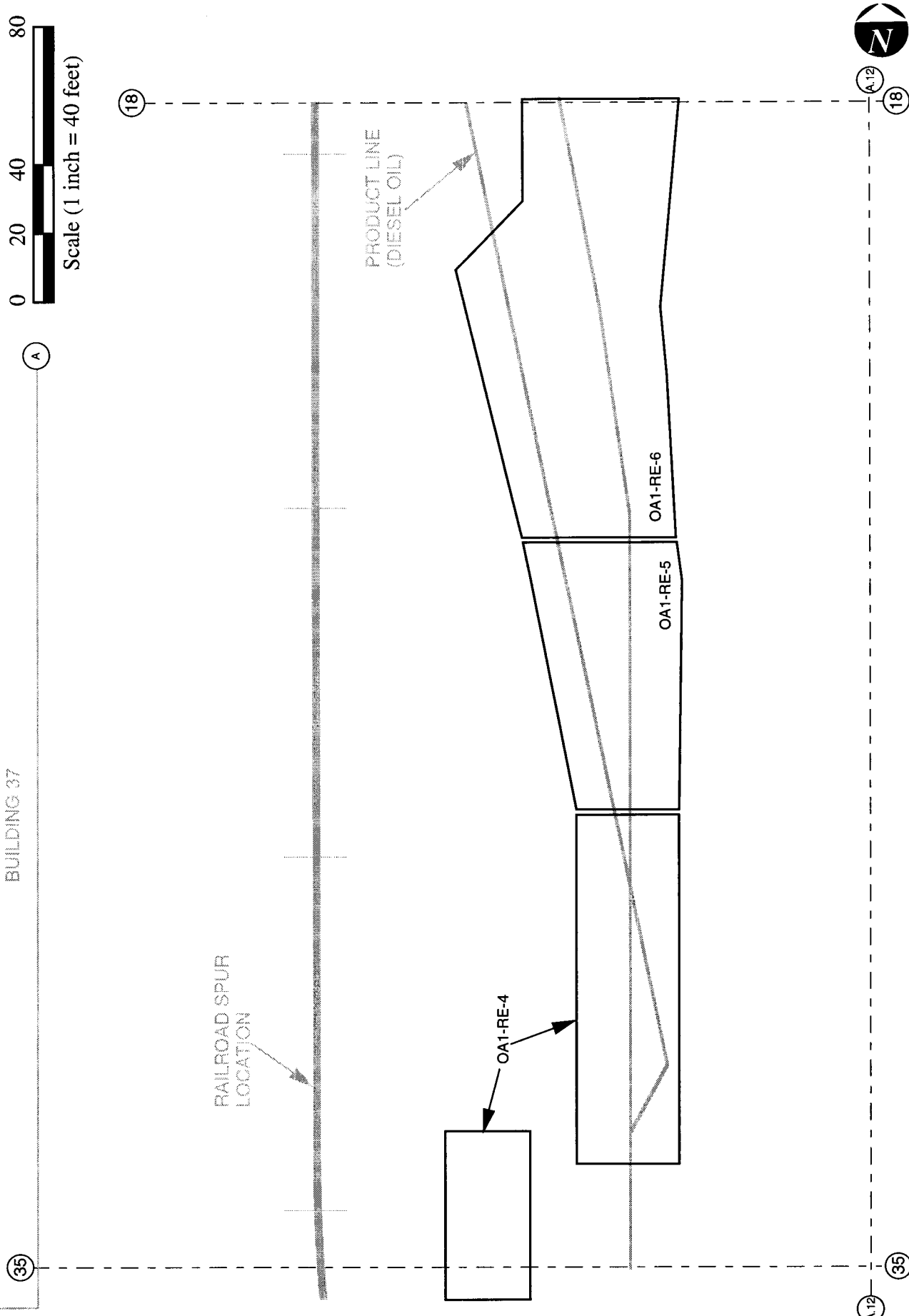
REV	DATE	BY	DESCRIPTION

SCALE:
AS SHOWN

BOEING REALTY CORPORATION
PARCEL A
SITE MAP

SHEET
FIG. 2
OF • SHEETS

g:/MDRC/BACKFILL/STOCKPIL/5thrp/Revision/Fig38

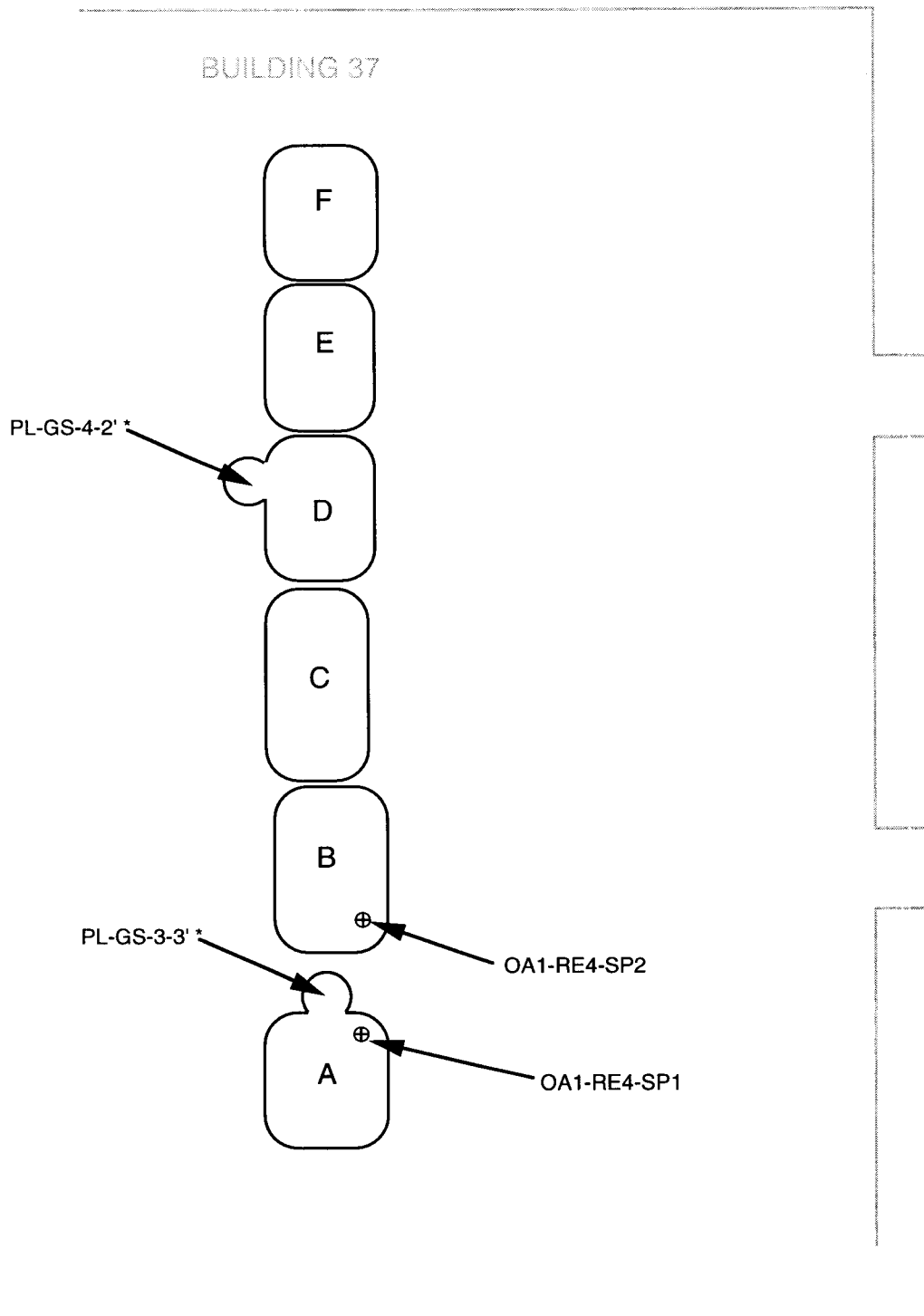


BOEING REALTY CORPORATION
C-6 FACILITY

Remedial Excavations OA1-RE-4, OA1-RE-5, and OA1-RE-6 Locations

FIGURE 3

Not to Scale



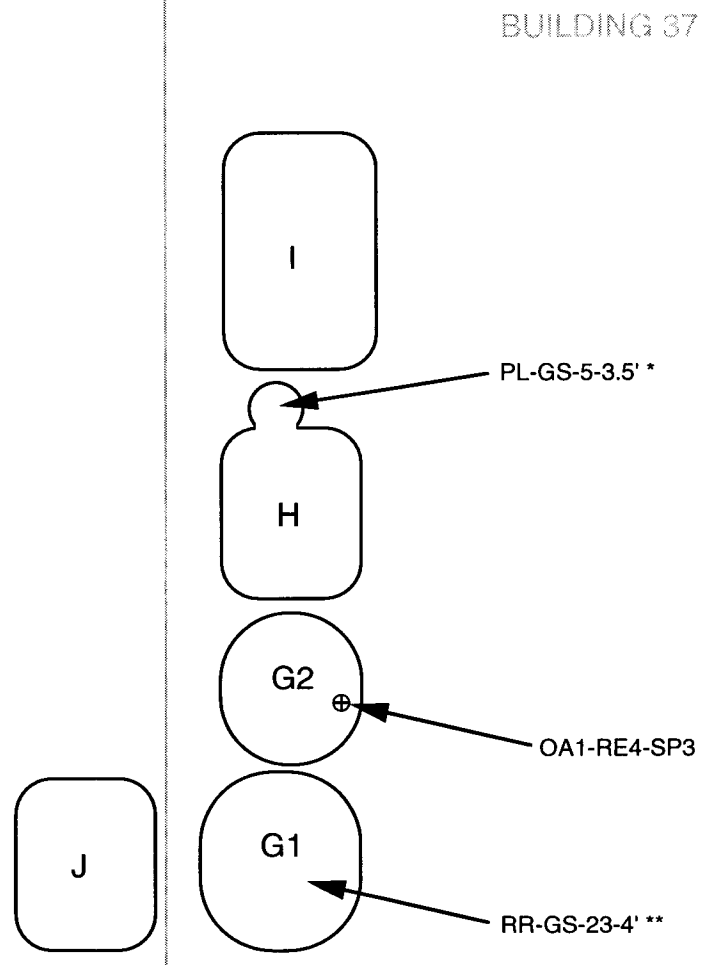
* See Figure 8 for these Hot Spot Sample Locations

BOEING REALTY CORPORATION
C-6 FACILITY

**Remedial Excavation OA1-RE-4 Stockpiles A through F
Stockpiles and Sample Locations**

FIGURE 4

Not to Scale



* See Figure 8 for this Hot Spot Sample Location

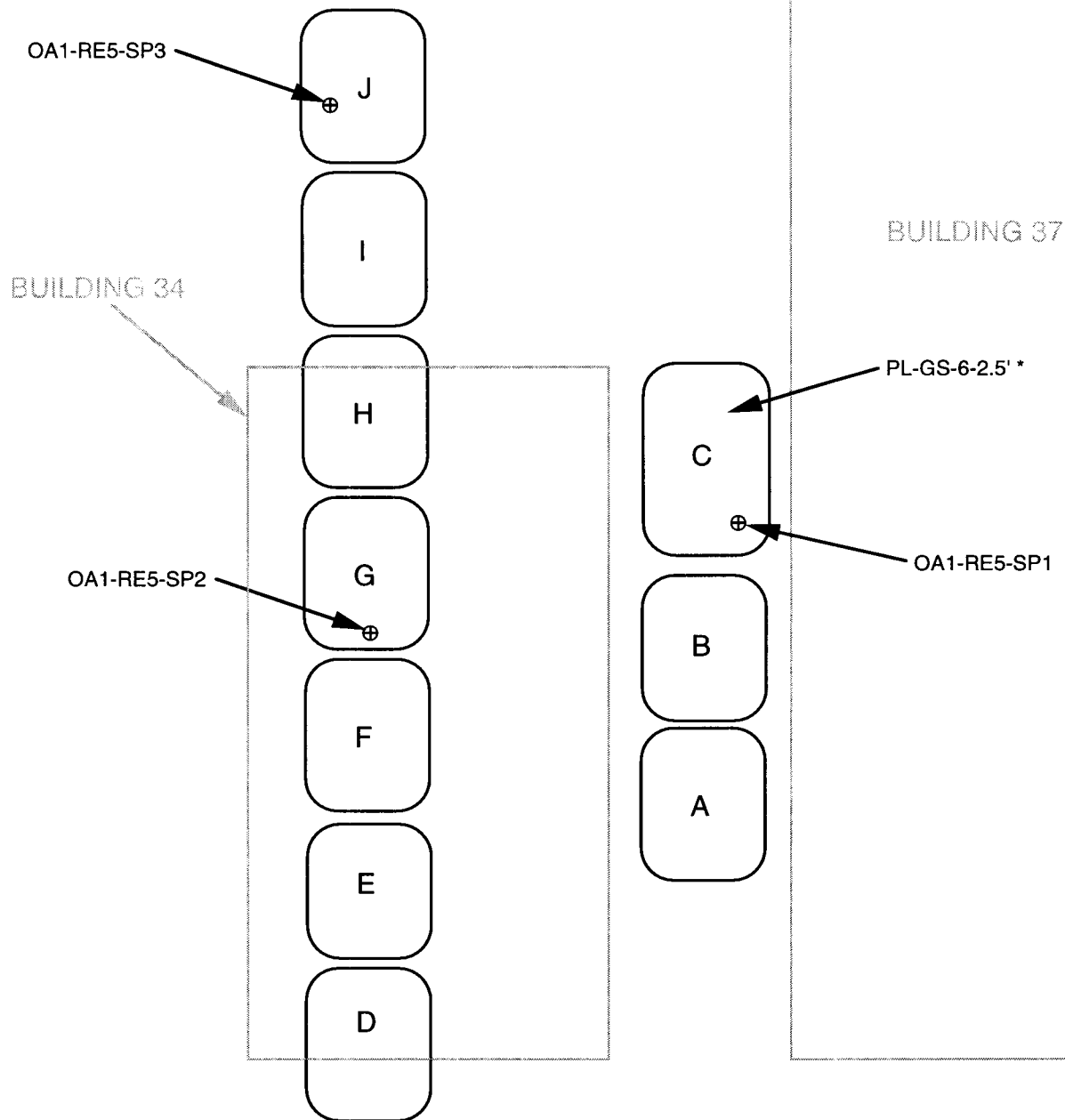
** See Figure 8 for this Confirmation Sample Location

BOEING REALTY CORPORATION
C-6 FACILITY

**Remedial Excavation OA1-RE-4 Stockpiles G1/G2 through J
Stockpiles and Sample Location**

FIGURE 5

Not to Scale



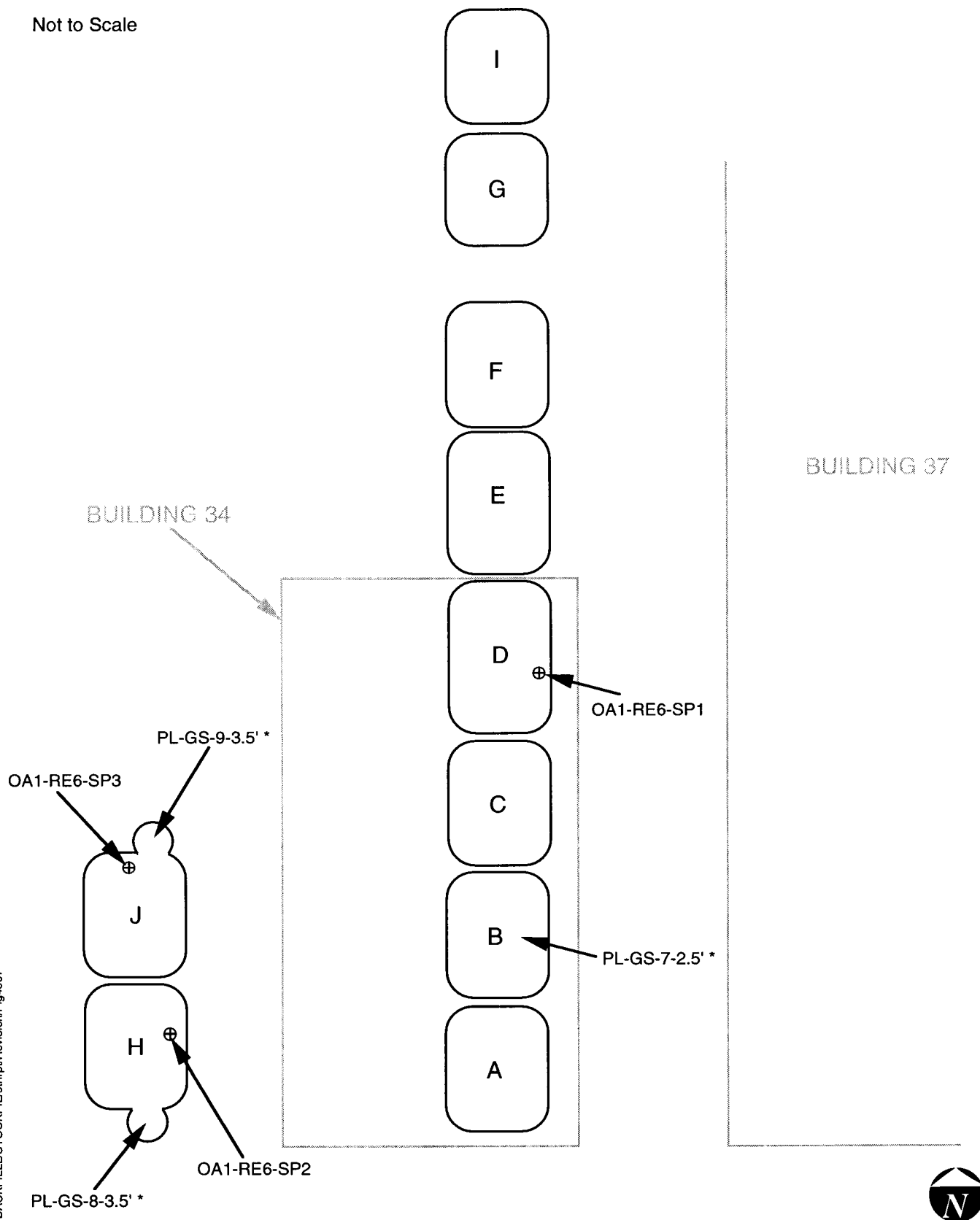
* See Figure 8 for this Hot Spot Sample Location

BOEING REALTY CORPORATION
C-6 FACILITY

FIGURE 6

Remedial Excavation OA1-RE-5 Stockpiles and Sample Locations

Not to Scale



g:\MDC\BACKFILL\STOCKPIL\5thrp\Revision\Fig4567

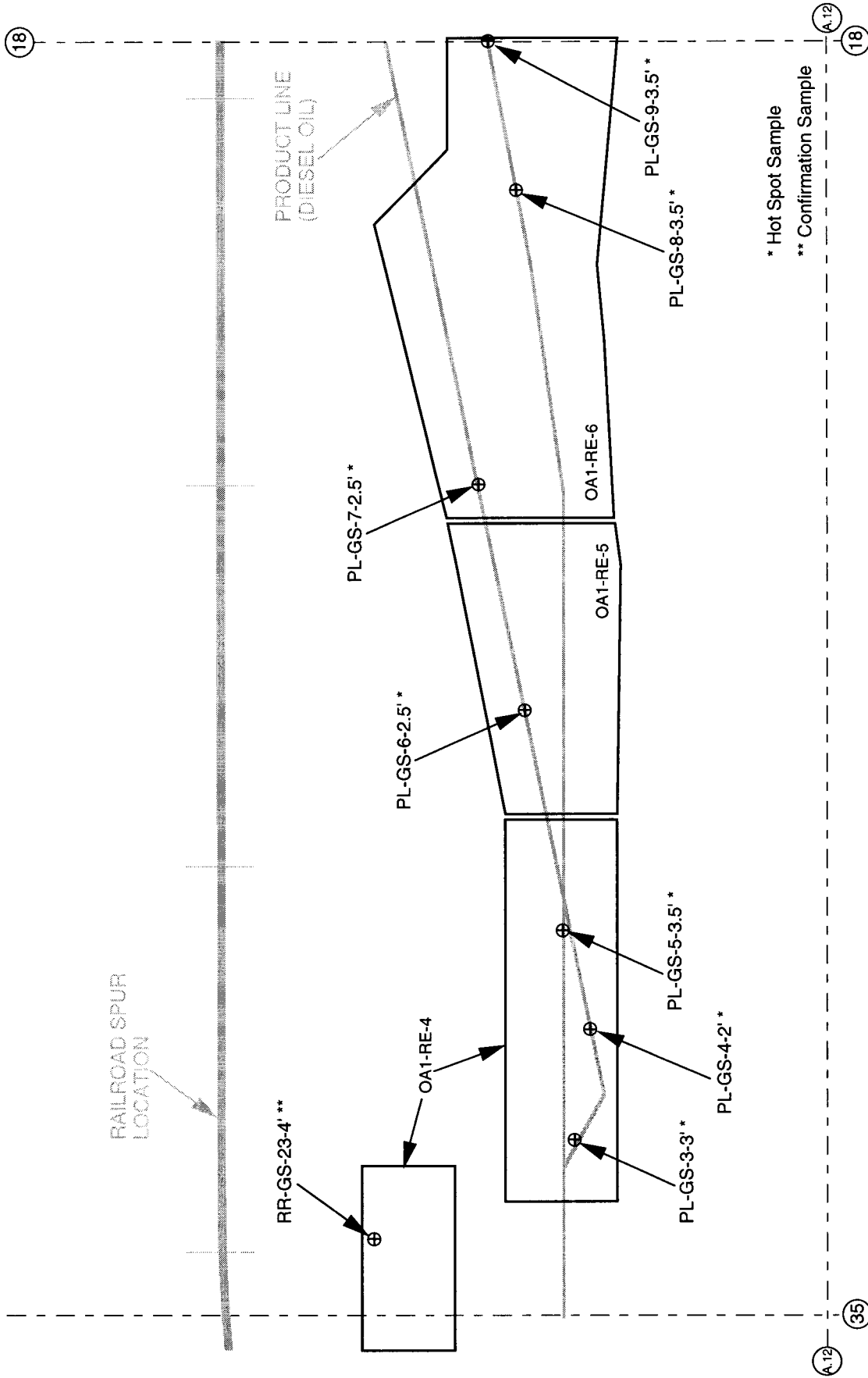
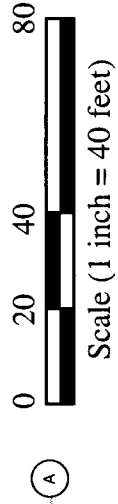
* See Figure 8 for these Hot Spot Sample Locations

BOEING REALTY CORPORATION
C-6 FACILITY

Remedial Excavation OA1-RE-6 Stockpiles and Sample Locations

FIGURE 7

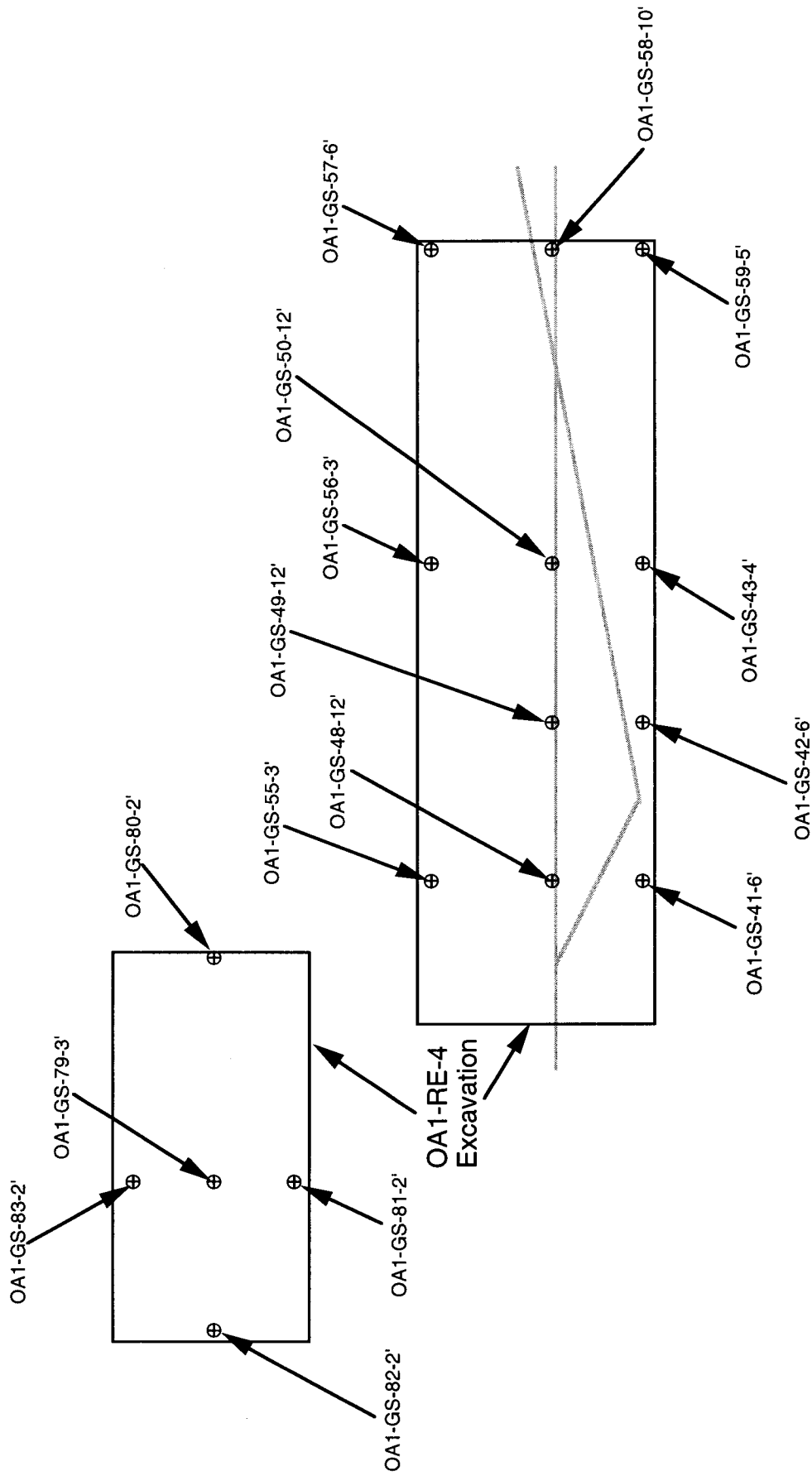
BUILDING 37



BOEING REALTY CORPORATION
C-6 FACILITY

Excavated Hot Spot and Confirmation Sample Locations

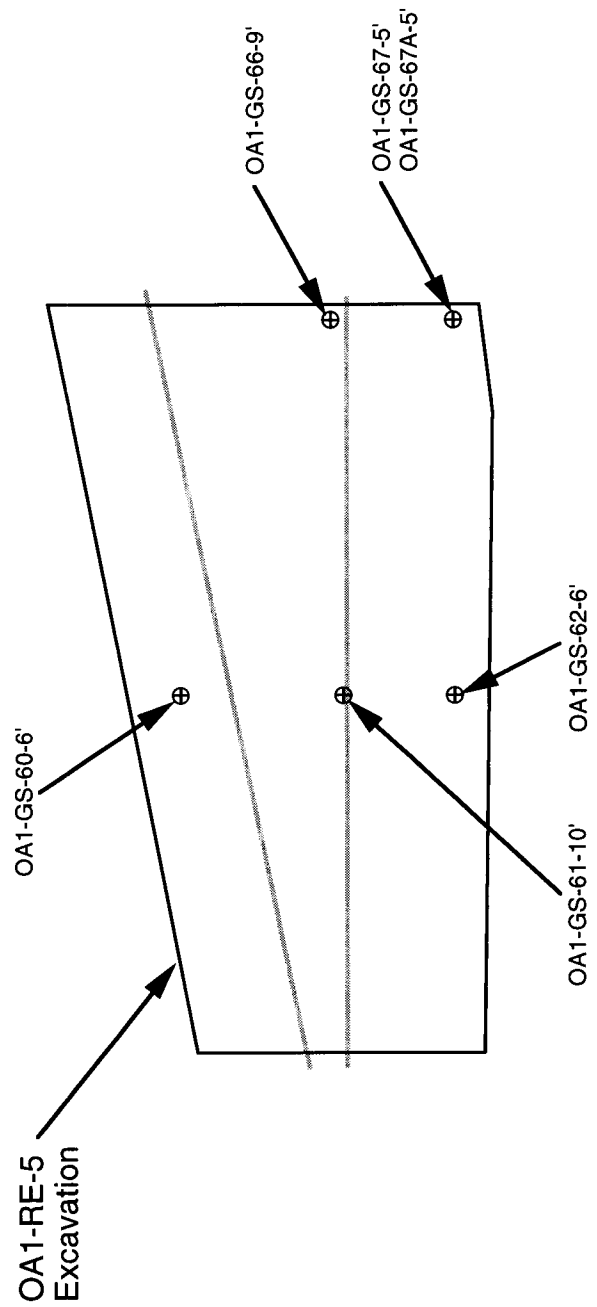
FIGURE 8



BOEING REALTY CORPORATION
C-6 FACILITY

Remedial Excavation OA1-RE-4 Confirmation Sample Locations

FIGURE 9

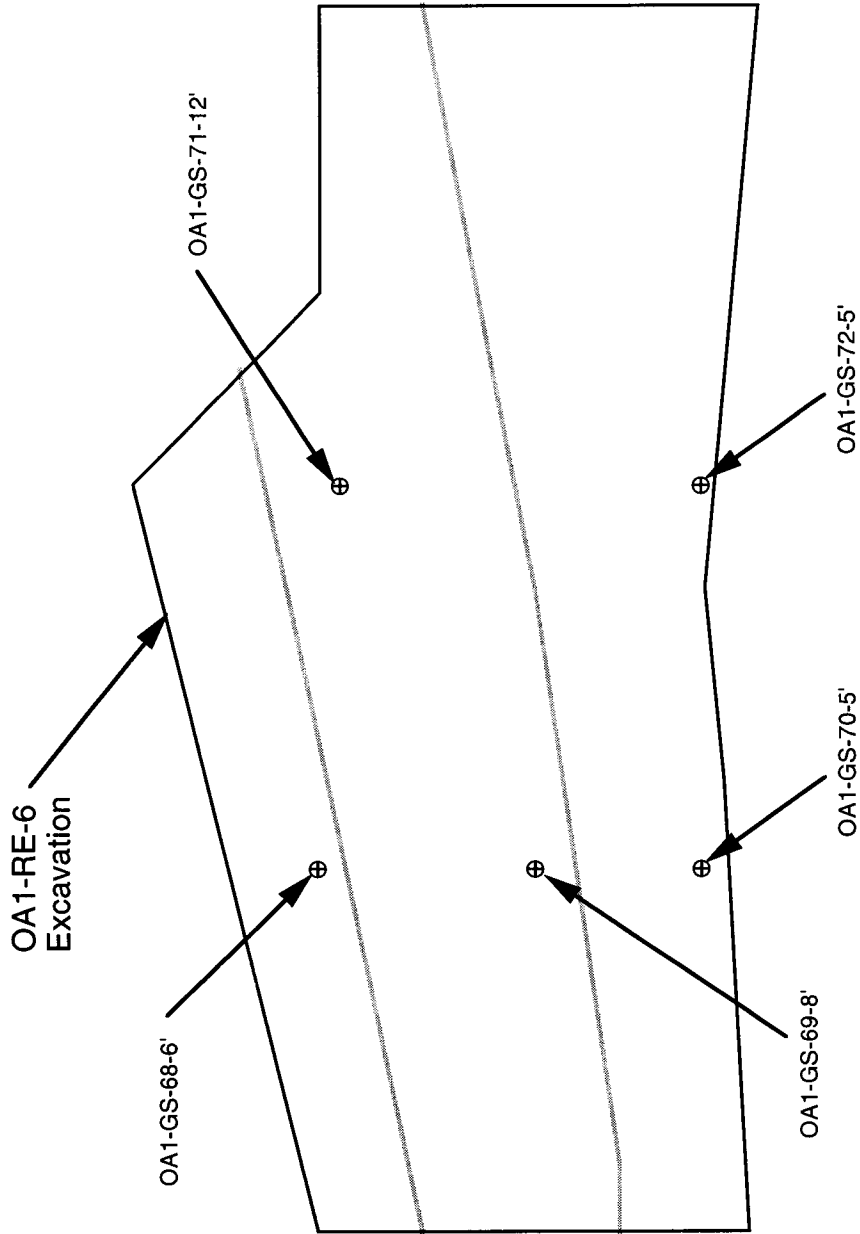


BOEING REALTY CORPORATION
C-6 FACILITY

FIGURE 10

Remedial Excavation OA1-RE-5 Confirmation Sample Locations

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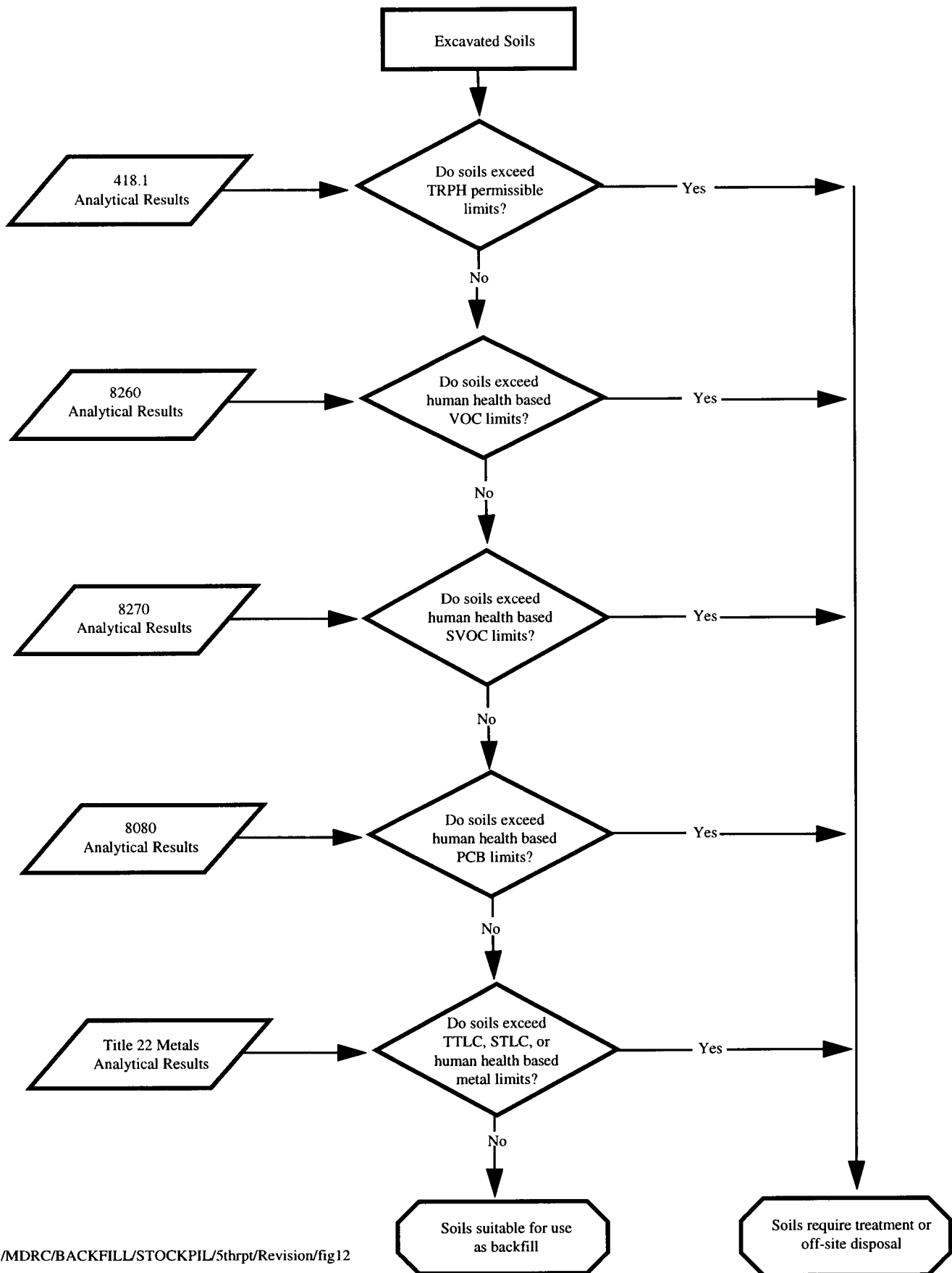
g:/MDRC/BACKFILL/STOCKPIL/5hrp/Revision/Fig91011

BOEING REALTY CORPORATION
C-6 FACILITY

FIGURE 11

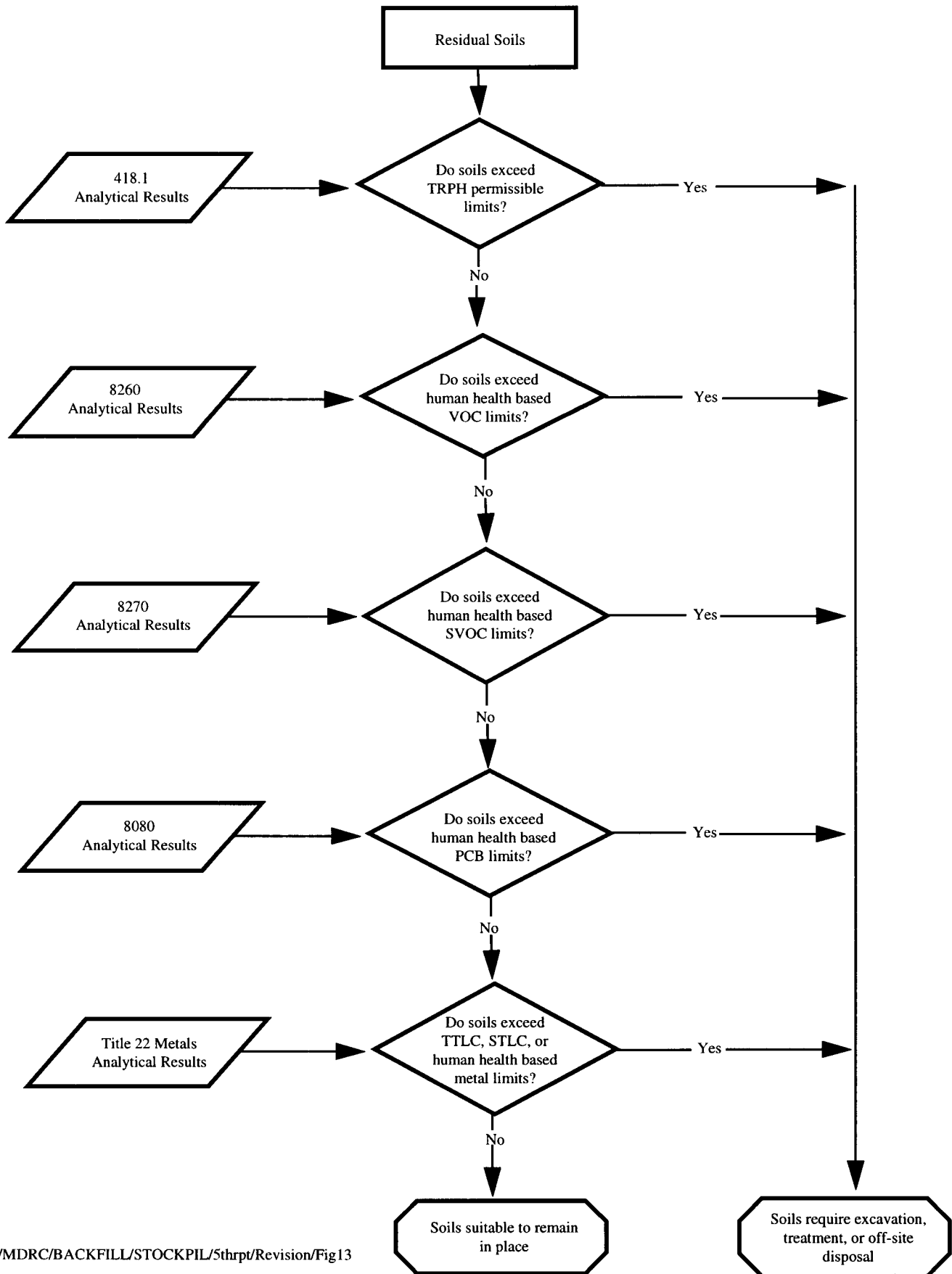
Remedial Excavation OA1-RE-6 Confirmation Sample Locations

FIGURE 12
Soil Screening Evaluation Process - Excavated Soil



g:/MDRC/BACKFILL/STOCKPIL/5thrpt/Revision/fig12

FIGURE 13
Soil Screening Evaluation Process - Residual Soil



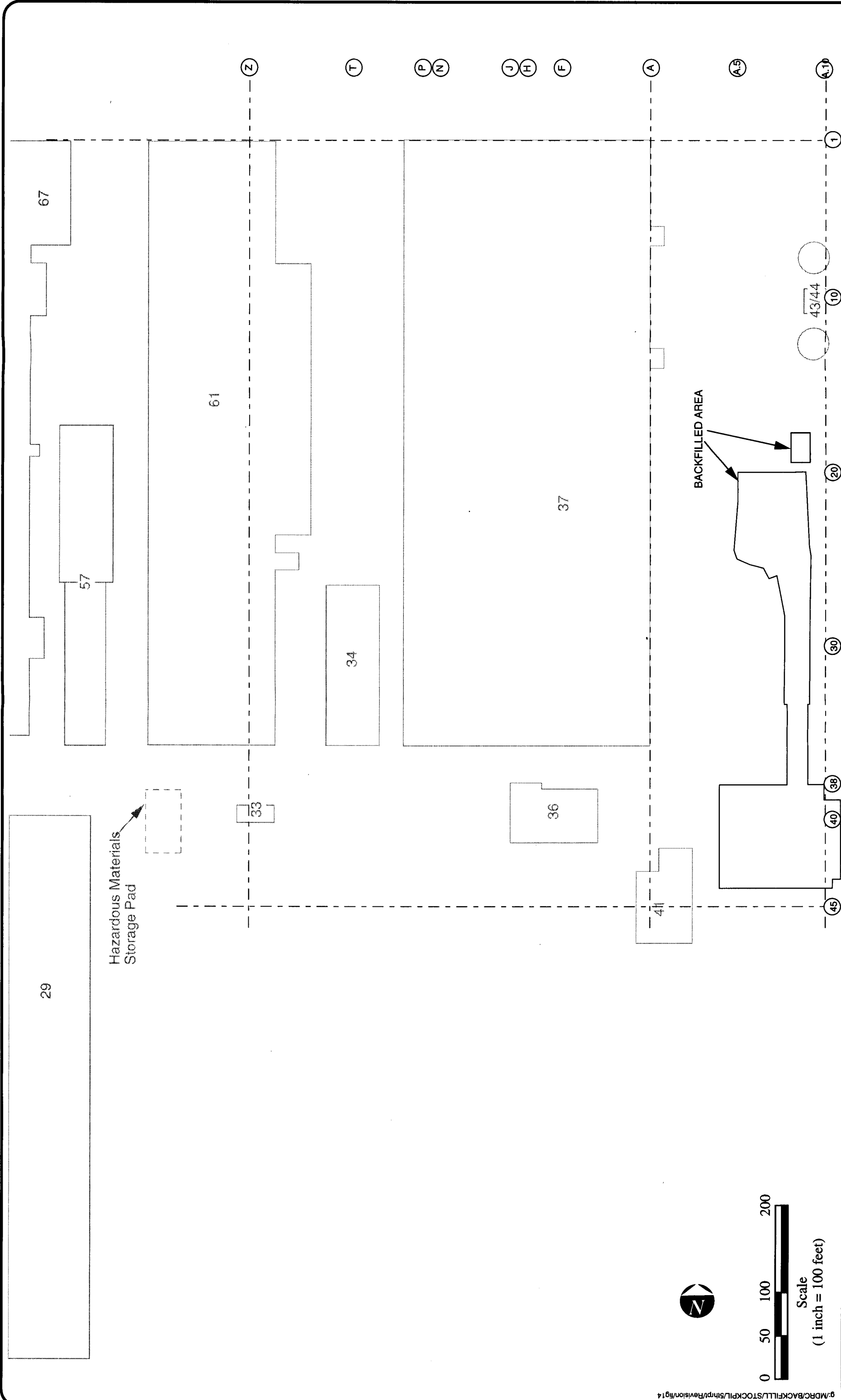


FIGURE 14

Soil Backfill Locations

BOEING REALTY CORPORATION
C-6 FACILITY

Tables



MONTGOMERY WATSON

TABLE 1**Summary of Soil Sample Analytical Methods**

Sample Type	EPA Method	Analyte
Hot Spot Sample	418.1 6000/7000 8260 8270 8080 8015M	TRPH (a) Metals VOCs SVOCs PCBs Fuel Characterization
Stockpile Sample	418.1 6000/7000 8260 8270 8080	TRPH (a) Metals VOCs SVOCs PCBs (b)
Confirmation Sample	418.1 6000/7000 8260 8270 8080 8015M	TRPH (a) Metals VOCs (c) SVOCs (c) PCBs (d) Fuel Characterization (e)

Notes:

TRPH Total Recoverable Petroleum Hydrocarbons

VOCs Volatile Organic Compounds

SVOCs Semi-volatile Organic Compounds.

PCBs Polychlorinated Biphenyls

(a) Samples exhibiting TRPH concentration greater than 10,000 mg/kg were submitted for carbon chain analysis.

(b) One sample per remedial excavation.

(c) The number of confirmation samples analyzed for VOCs and SVOCs is approximately equal to the number of stockpile samples analyzed for VOCs and SVOCs. Confirmation samples are selected for analysis of VOCs and SVOCs based on highest TRPH concentration, and location of evenly spaced confirmation sample locations.

(d) Generally, one sample per each remedial excavation, or following the removal of each 2500 cubic yards of soil, whichever is less.

(e) Confirmation samples collected from "pot hole" excavations were selectively analyzed for fuel characterization.

TABLE 2
Analytical Data Summary
Remedial Excavation OA1-RE-4 Excavated Hot Spot Samples

Analyte	EPA Method	Sample Number, Collection Date, Grid Location and Depth			Regulatory Levels TTLC (mg/kg) STLC (mg/L)	
		PL-GS-3-3' 6/3/97	PL-GS-4-2' 6/9/97	PL-GS-5-3.5' 6/9/97		
		A.8/A.9-32.5 @ 3' bgs*	A.9-31 @ 2' bgs*	A.8/A.9-30 @ 3.5' bgs*		
TRPH (mg/kg)	418.1	18,000.00	<8.00	<8.00		
TPHd (mg/kg)	8015M	28,000.00	<8.00	<8.00		
TPHg (mg/kg)	8015M	47.00	<5.00	<5.00		
Title 22 Metals (mg/kg)						
Antimony	6010	<5.00	<5.00	<5.00	500	15
Arsenic	6010	<1.00	<1.00	<1.00	500	5
Barium	6010	100.00	83.00	99.00	10,000	100
Beryllium	6010	<0.10	<0.10	<0.10	75	0.75
Cadmium	6010	<0.10	<0.10	<0.10	100	1
Chromium (VI)	7196	<0.50	<0.50	<0.50	500	5
Chromium (total)	6010	120.00 (2)	17.00	19.00	2,500	5 **
Cobalt	6010	6.00	4.10	5.00	8,000	80
Copper	6010	28.00	5.90	5.00	2,500	25
Lead (total)	6010	<1.00	<1.00	<1.00	1,000	5
Mercury	7471	<0.01	<0.01	<0.01	20	0.2
Molybdenum	6010	<0.50	<0.50	<0.50	3,500	350
Nickel	6010	10.00	5.90	7.20	2,000	20
Selenium	6010	<1.00	<1.00	<1.00	100	1
Silver	6010	<0.10	<0.10	<0.10	500	5
Thallium	6010	<5.00	<5.00	<5.00	700	7
Vanadium	6010	24.00	17.00	20.00	2,400	24
Zinc	6010	60.00	27.00	33.00	5,000	250
VOCs (1) (µg/kg)						
Trichloroethene	8260	<100.00	26.00	59.00		
1,3,5-Trimethylbenzene	8260	240.00	<2.50	<2.50		
1,2,4-Trimethylbenzene	8260	640.00	<2.50	<2.50		
sec-Butylbenzene	8260	200.00	<2.50	<2.50		
p-Isopropyltoluene	8260	190.00	<2.50	<2.50		
Naphthalene	8260	3,800.00	<2.50	<2.50		
SVOCs (1) (µg/kg)						
Benzo (a) Anthracene	8270	1,600.00	<100.00	<100.00		
Chrysene	8270	2,600.00	<100.00	<100.00		
Fluorene	8270	3,700.00	<100.00	<100.00		
2-Methylnaphthalene	8270	8,900.00	<100.00	<100.00		
Naphthalene	8270	1,000.00	<100.00	<100.00		
Phenanthrene	8270	11,000.00	<100.00	<100.00		
Pyrene	8270	5,600.00	<100.00	<100.00		
Carbon Chain Range (mg/kg)						
Up to and including C12	8015m	2,000.00 #	<8.00	<8.00		
C13-C22	8015m	23,000.00 #	<8.00	<8.00		
C23 and higher	8015m	3,100.00	<8.00	<8.00		
PCBs (µg/kg)	8080	ND	ND	ND		

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
mg/L = milligrams per liter
-- = not analyzed
ND = not detected
VOCs = Volatile Organic Compounds
SVOCs = Semi-volatile Organic Compounds
PCBs = Polychlorinated Biphenyls
bgs = below ground surface

TRPH = Total Recoverable Petroleum Hydrocarbons
TPHd = Total Petroleum Hydrocarbons as diesel
TPHg = Total Petroleum Hydrocarbons as gasoline
TTLC = California Total Threshold Limit Concentration
STLC = California Soluble Threshold Limit Concentration
(1) VOCs and SVOCs not listed were not detected
(2) Waste Extraction Test performed on this sample. Result was 2.8 mg/L.
= Exceeds Screening Value

* Refer to Figure 8 for sample location

** STLC is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.

NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 3
Analytical Data Summary
Remedial Excavation OA1-RE-4 Stockpile Samples*

Analyte	EPA Method	Sample Number and Collection Date			Regulatory Levels	
		OA1-RE4-SP1 7/22/97	OA1-RE4-SP2 7/22/97	OA1-RE4-SP3 7/23/97		
TRPH (mg/kg)	418.1	1,300.00	76.00	63.00	TTLc (mg/kg)	STLC (mg/L)
Title 22 Metals (mg/kg)						
Antimony	6010	<5.00	<5.00	<5.00	500	15
Arsenic	6010	<1.00	<1.00	<1.00	500	5
Barium	6010	110.00	100.00	97.00	10,000	100
Beryllium	6010	<0.10	<0.10	<0.10	75	0.75
Cadmium	6010	<0.10	<0.10	<0.10	100	1
Chromium (VI)	7196	<0.50	<0.50	<0.50	500	5
Chromium (total)	6010	160.00 (2)(3)	29.00	29.00	2,500	5 **
Cobalt	6010	7.10	6.60	6.20	8,000	80
Copper	6010	36.00	22.00	13.00	2,500	25
Lead (total)	6010	41.00	<1.00	<1.00	1,000	5
Mercury	7471	<0.01	<0.01	<0.01	20	0.2
Molybdenum	6010	<0.50	<0.50	<0.50	3,500	350
Nickel	6010	15.00	10.00	11.00	2,000	20
Selenium	6010	<1.00	<1.00	<1.00	100	1
Silver	6010	<0.10	<0.10	<0.10	500	5
Thallium	6010	<5.00	<5.00	<5.00	700	7
Vanadium	6010	33.00	29.00	26.00	2,400	24
Zinc	6010	280.00	56.00	63.00	5,000	250
VOCs (1) (µg/kg)						
Trichloroethene	8260	<2.50	7.40	<2.50		
Total Xylenes	8260	54.00	<2.50	<2.50		
1,3,5-Trimethylbenzene	8260	53.00	<2.50	<2.50		
1,2,4-Trimethylbenzene	8260	170.00	<2.50	<2.50		
sec-Butylbenzene	8260	28.00	<2.50	<2.50		
p-Isopropyltoluene	8260	33.00	<2.50	<2.50		
n-Butylbenzene	8260	39.00	<2.50	<2.50		
Naphthalene	8260	430.00	17.00	<2.50		
SVOCs (1) (µg/kg)						
Benzo (a) Anthracene	8270	130.00	210.00	140.00		
Chrysene	8270	200.00	240.00	300.00		
bis (2-Ethylhexyl)Phthalate	8270	1,400.00	<100.00	<100.00		
Butylbenzylphthalate	8270	190.00	<100.00	<100.00		
Fluoranthene	8270	190.00	420.00	450.00		
Fluorene	8270	280.00	<100.00	<100.00		
2-Methylnaphthalene	8270	1,900.00	<100.00	<100.00		
Naphthalene	8270	390.00	<100.00	<100.00		
Phenanthrene	8270	990.00	230.00	210.00		
Pyrene	8270	400.00	390.00	390.00		
Carbon Chain Range (mg/kg)						
8015m		--	--	--		
PCBs (1) (µg/kg)						
PCB-1260	8080	35.00	--	--		

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

mg/L = milligrams per liter

-- = not analyzed

TRPH = Total Recoverable Petroleum Hydrocarbons

PCBs = Polychlorinated biphenyls

ND = not detected

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

TTLc = California Total Threshold Limit Concentration

STLC = California Soluble Threshold Limit Concentration

(1) VOCs, SVOCs, and PCBs not listed were not detected

(2) Waste Extraction Test performed on this sample. Result was 2.2 mg/L.

(3) TCLP analysis performed on this sample. Result was <0.1 mg/L.

* Refer to Figures 4 and 5 for sample locations

** STLC is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.

NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 4
Analytical Data Summary
Remedial Excavation OA1-RE-4 Excavated Confirmation Sample

		Sample Number, Collection Date, Grid Location and Depth			
		RR-GS-23-4' 6/4/97 A.6-34 @ 4' bgs*			
Analyte	EPA Method				
TRPH (mg/kg)	418.1	110.00		Regulatory Levels	
				TTL	STL
Title 22 Metals (mg/kg)				(mg/kg)	(mg/L)
Antimony	6010	<5.00		500	15
Arsenic	6010	<1.00		500	5
Barium	6010	140.00		10,000	100
Beryllium	6010	<0.10		75	0.75
Cadmium	6010	<0.10		100	1
Chromium (VI)	7196	<0.50		500	5
Chromium (total)	6010	30.00		2,500	5 **
Cobalt	6010	8.80		8,000	80
Copper	6010	14.00		2,500	25
Lead (total)	6010	<1.00		1,000	5
Mercury	7471	<0.01		20	0.2
Molybdenum	6010	<0.50		3,500	350
Nickel	6010	12.00		2,000	20
Selenium	6010	<1.00		100	1
Silver	6010	<0.10		500	5
Thallium	6010	<5.00		700	7
Vanadium	6010	35.00		2,400	24
Zinc	6010	41.00		5,000	250
VOCs (µg/kg)	8260	--			
SVOCs (µg/kg)	8270	--			
Carbon Chain Range (mg/kg)	8015m	--			
PCBs (µg/kg)	8080	ND			

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

mg/L = milligrams per liter

-- = not analyzed

ND = not detected

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

TRPH = Total Recoverable Petroleum Hydrocarbons

TTL = California Total Threshold Limit Concentration

STL = California Soluble Threshold Limit Concentration

bgs = below ground surface

PCBs = Polychlorinated Biphenyls

* Refer to Figure 8 for sample location

** STL is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.

NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 5
Analytical Data Summary
Remedial Excavation OA1-RE-5 Excavated Hot Spot Sample

		Sample Number, Collection Date, Grid Location and Depth		
		PL-GS-6-2.5'		
		6/9/97		
		A.8-27 @ 2.5' bgs*		
Analyte	EPA Method			
TRPH (mg/kg)	418.1	<8.00		
TPHd (mg/kg)	8015M	<8.00		
TPHg (mg/kg)	8015M	<5.00		
Title 22 Metals (mg/kg)				
			Regulatory Levels	
			TTL	STL
			(mg/kg)	(mg/L)
Antimony	6010	<5.00	500	15
Arsenic	6010	<1.00	500	5
Barium	6010	100.00	10,000	100
Beryllium	6010	<0.10	75	0.75
Cadmium	6010	<0.10	100	1
Chromium (VI)	7196	<0.50	500	5
Chromium (total)	6010	29.00	2,500	5 **
Cobalt	6010	6.90	8,000	80
Copper	6010	<0.10	2,500	25
Lead (total)	6010	<1.00	1,000	5
Mercury	7471	<0.01	20	0.2
Molybdenum	6010	<0.50	3,500	350
Nickel	6010	15.00	2,000	20
Selenium	6010	<1.00	100	1
Silver	6010	<0.10	500	5
Thallium	6010	<5.00	700	7
Vanadium	6010	31.00	2,400	24
Zinc	6010	52.00	5,000	250
VOCs (1) (µg/kg)				
1,1-Dichloroethane	8260	7.50		
Trichloroethene	8260	74.00		
cis-1,2-Dichloroethene	8260	6.10		
1,1,2-Trichloroethane	8260	2.50		
SVOCs (µg/kg)		8270	ND	
Carbon Chain Range (mg/kg)		8015m	ND	
PCBs (µg/kg)		8080	ND	

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

mg/L = milligrams per liter

-- = not analyzed

ND = not detected

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

PCBs = Polychlorinated Biphenyls

TRPH = Total Recoverable Petroleum Hydrocarbons

TPHd = Total Petroleum Hydrocarbons as diesel

TPHg = Total Petroleum Hydrocarbons as gasoline

TTL = California Total Threshold Limit Concentration

STL = California Soluble Threshold Limit Concentration

(1) VOCs not listed were not detected

bgs = below ground surface

* Refer to Figure 8 for sample location

** STL is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.

NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 6
Analytical Data Summary
Remedial Excavation OA1-RE-5 Stockpile Samples*

Analyte	EPA Method	Sample Number and Collection Date			Regulatory Levels	
		OA1-RE5-SP1 7/24/97	OA1-RE5-SP2 7/24/97	OA1-RE5-SP3 7/25/97		
TRPH (mg/kg)	418.1	300.00	210.00	260.00		
					TTLc	STLC
					(mg/kg)	(mg/L)
Title 22 Metals (mg/kg)						
Antimony	6010	<5.00	<5.00	<5.00	500	15
Arsenic	6010	<1.00	<1.00	<1.00	500	5
Barium	6010	83.00	76.00	120.00	10,000	100
Beryllium	6010	<0.10	<0.10	<0.10	75	0.75
Cadmium	6010	<0.10	<0.10	<0.10	100	1
Chromium (VI)	7196	<0.50	<0.50	<0.50	500	5
Chromium (total)	6010	26.00	28.00	62.00 (2)(3)	2,500	5 **
Cobalt	6010	6.00	6.80	8.40	8,000	80
Copper	6010	32.00	26.00	65.00	2,500	25
Lead (total)	6010	5.30	<1.00	13.00	1,000	5
Mercury	7471	<0.01	<0.01	<0.01	20	0.2
Molybdenum	6010	<0.50	<0.50	<0.50	3,500	350
Nickel	6010	10.00	11.00	16.00	2,000	20
Selenium	6010	<1.00	<1.00	<1.00	100	1
Silver	6010	<0.10	<0.10	<0.10	500	5
Thallium	6010	<5.00	<5.00	<5.00	700	7
Vanadium	6010	24.00	26.00	32.00	2,400	24
Zinc	6010	82.00	110.00	180.00	5,000	250
VOCs (1) (µg/kg)						
Ethylbenzene	8260	8.30	<2.50	<2.50		
1,1,2-Trichloroethane	8260	3.70	<2.50	<2.50		
Trichloroethene	8260	63.00	<2.50	4.90		
Total Xylenes	8260	13.00	9.10	<2.50		
Isopropylbenzene	8260	6.50	<2.50	<2.50		
n-Propylbenzene	8260	15.00	2.80	<2.50		
1,3,5-Trimethylbenzene	8260	5.60	6.00	<2.50		
1,2,4-Trimethylbenzene	8260	12.00	16.00	5.20		
sec-Butylbenzene	8260	7.10	3.10	<2.50		
p-Isopropyltoluene	8260	2.90	3.10	<2.50		
n-Butylbenzene	8260	14.00	3.00	<2.50		
Naphthalene	8260	110.00	18.00	<2.50		
SVOCs (1) (µg/kg)						
Benzo (a) Anthracene	8270	<100.00	270.00	<100.00		
Benzo (b) Fluoranthene	8270	<250.00	420.00	<250.00		
Benzo(a)Pyrene	8270	<250.00	220.00	<250.00		
bis (2-Ethylhexyl)Phthalate	8270	130.00	110.00	<100.00		
Chrysene	8270	100.00	840.00	110.00		
Fluoranthene	8270	<100.00	1200.00	130.00		
2-Methylnaphthalene	8270	340.00	120.00	<100.00		
Naphthalene	8270	130.00	<100.00	<100.00		
Phenanthrene	8270	110.00	680.00	<100.00		
Pyrene	8270	150.00	1500.00	130.00		
Carbon Chain Range (mg/kg)						
	8015m	--	--	--		
PCBs (1) (µg/kg)						
PCB-1260	8080	38.00	--	--		

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

mg/L = milligrams per liter

-- = not analyzed

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

TRPH = Total Recoverable Petroleum Hydrocarbons

PCBs = Polychlorinated biphenyls

TTLc = California Total Threshold Limit Concentration

STLC = California Soluble Threshold Limit Concentration

(1) VOCs, SVOCs, and PCBs not listed were not detected

(2) Waste Extraction Test performed on this sample. Result was 0.59 mg/L.

(3) TCLP analysis performed on this sample. Result was <0.1 mg/L.

* Refer to Figure 6 for sample locations

** STLC is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.

NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 7
Analytical Data Summary
Remedial Excavation OA1-RE-6 Excavated Hot Spot Samples

Analyte	EPA Method	Sample Number, Collection Date, Grid Location and Depth			Regulatory Levels	
		PL-GS-7-2.5' 6/9/97 A.7/A.8-24 @ 2.5' bgs*	PL-GS-8-3.5' 7/2/97 A.8-20 @ 3.5' bgs*	PL-GS-9-3.5' 7/2/97 A.7/A.8-18 @ 3.5' bgs*		
TRPH (mg/kg)	418.1	<8.00	20,000.00	16,000.00		
TPHd (mg/kg)	8015M	<8.00	9,900.00	15,000.00		
TPHg (mg/kg)	8015M	<5.00	180.00	250.00		
Title 22 Metals (mg/kg)					TTLc (mg/kg)	STLC (mg/L)
Antimony	6010	<5.00	<5.00	<5.00	500	15
Arsenic	6010	<1.00	<1.00	<1.00	500	5
Barium	6010	95.00	93.00	110.00	10,000	100
Beryllium	6010	<0.10	<0.10	<0.10	75	0.75
Cadmium	6010	<0.10	<0.10	<0.10	100	1
Chromium (VI)	7196	<0.50	<0.50	<0.50	500	5
Chromium (total)	6010	29.00	26.00	32.00	2,500	5 **
Cobalt	6010	7.00	7.60	7.00	8,000	80
Copper	6010	1.10	11.00	20.00	2,500	25
Lead (total)	6010	<1.00	<1.00	<1.00	1,000	5
Mercury	7471	<0.01	<0.01	<0.01	20	0.2
Molybdenum	6010	<0.50	<0.50	<0.50	3,500	350
Nickel	6010	14.00	9.50	14.00	2,000	20
Selenium	6010	<1.00	<1.00	<1.00	100	1
Silver	6010	<0.10	<0.10	<0.10	500	5
Thallium	6010	<5.00	<5.00	<5.00	700	7
Vanadium	6010	30.00	30.00	37.00	2,400	24
Zinc	6010	120.00	81.00	81.00	5,000	250
VOCs (1) (µg/kg)						
1,1-Dichloroethene	8260	<2.50	120.00	<100.00		
Ethylbenzene	8260	<2.50	150.00	<100.00		
Trichloroethene	8260	<2.50	750.00	<100.00		
Total Xylenes	8260	<2.50	210.00	<100.00		
cis-1,2-Dichloroethene	8260	<2.50	310.00	<100.00		
Isopropylbenzene	8260	<2.50	130.00	100.00		
n-Propylbenzene	8260	<2.50	230.00	<100.00		
1,3,5-Trimethylbenzene	8260	<2.50	330.00	370.00		
1,2,4-Trimethylbenzene	8260	<2.50	1,200.00	210.00		
sec-Butylbenzene	8260	<2.50	210.00	410.00		
p-Isopropyltoluene	8260	<2.50	270.00	570.00		
n-Butylbenzene	8260	<2.50	260.00	280.00		
Naphthalene	8260	<2.50	1,400.00	1,100.00		
SVOCs (1) (µg/kg)						
Acenaphthene	8270	<100.00	<400.00	1,000.00		
Anthracene	8270	<100.00	510.00	<800.00		
Benzo (a) Anthracene	8270	<100.00	440.00	1,000.00		
Chrysene	8270	<100.00	1,000.00	1,600.00		
Fluoranthene	8270	<100.00	500.00	1,300.00		
Fluorene	8270	<100.00	2,200.00	1,300.00		
2-Methylnaphthalene	8270	<100.00	8,100.00	7,200.00		
Naphthalene	8270	<100.00	2,200.00	1,500.00		
Phenanthrene	8270	<100.00	7,400.00	6,000.00		
Pyrene	8270	<100.00	640.00	1,900.00		
Carbon Chain Range (mg/kg)						
Up to and including C12	8015m	<8.00	710.00	1,200.00		
C13-C22	8015m	<8.00	8,000.00	12,000.00 #		
C23 and higher	8015m	<8.00	2,400.00	3,100.00		
PCBs (µg/kg)	8080	ND	ND	ND		

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
mg/L = milligrams per liter
-- = not analyzed
ND = not detected
VOCs = Volatile Organic Compounds
SVOCs = Semi-volatile Organic Compounds
PCBs = Polychlorinated Biphenyls

TRPH = Total Recoverable Petroleum Hydrocarbons
TPHd = Total Petroleum Hydrocarbons as diesel
TPHg = Total Petroleum Hydrocarbons as gasoline
TTLc = California Total Threshold Limit Concentration
STLC = California Soluble Threshold Limit Concentration
(1) VOCs and SVOCs not listed were not detected
bgs = below ground surface
= Exceeds Screening Value

* Refer to Figure 8 for sample location

** STLC is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.

NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 8
Analytical Data Summary
Remedial Excavation OA1-RE-6 Stockpile Samples*

Analyte	EPA Method	Sample Number and Collection Date			Regulatory Levels	
		OA1-RE6-SP1 7/28/97	OA1-RE6-SP2 7/29/97	OA1-RE6-SP3 7/29/97		
TRPH (mg/kg)	418.1	120.00	5,900.00	4,700.00		
Title 22 Metals (mg/kg)					TTL	STL
					(mg/kg)	(mg/L)
Antimony	6010	<5.00	<5.00	<5.00	500	15
Arsenic	6010	<1.00	<1.00	<1.00	500	5
Barium	6010	110.00	96.00	98.00	10,000	100
Beryllium	6010	<0.10	<0.10	<0.10	75	0.75
Cadmium	6010	<0.10	<0.10	<0.10	100	1
Chromium (VI)	7196	<0.50	<0.50	<0.50	500	5
Chromium (total)	6010	35.00	59.00 (2)(3)	38.00	2,500	5 **
Cobalt	6010	7.70	6.00	7.20	8,000	80
Copper	6010	30.00	48.00	24.00	2,500	25
Lead (total)	6010	<1.00	24.00	<1.00	1,000	5
Mercury	7471	<0.01	<0.01	<0.01	20	0.2
Molybdenum	6010	<0.50	<0.50	<0.50	3,500	350
Nickel	6010	9.50	14.00	12.00	2,000	20
Selenium	6010	<1.00	<1.00	<1.00	100	1
Silver	6010	<0.10	<0.10	<0.10	500	5
Thallium	6010	<5.00	<5.00	<5.00	700	7
Vanadium	6010	25.00	30.00	31.00	2,400	24
Zinc	6010	71.00	440.00	110.00	5,000	250
VOCs (1) (µg/kg)						
Ethylbenzene	8260	<2.50	280.00	180.00		
Trichloroethene	8260	5.20	110.00	85.00		
Total Xylenes	8260	<2.50	550.00	420.00		
Isopropylbenzene	8260	<2.50	210.00	230.00		
n-Propylbenzene	8260	<2.50	380.00	370.00		
1,3,5-Trimethylbenzene	8260	<2.50	580.00	470.00		
1,2,4-Trimethylbenzene	8260	<2.50	2,000.00	2,500.00		
sec-Butylbenzene	8260	<2.50	320.00	350.00		
p-Isopropyltoluene	8260	<2.50	420.00	470.00		
n-Butylbenzene	8260	<2.50	350.00	460.00		
Naphthalene	8260	<2.50	1,800.00	2,600.00		
SVOCs (1) (µg/kg)						
Anthracene	8270	<100.00	1,000.00	800.00		
Benzo (a) Anthracene	8270	<100.00	560.00	<400.00		
bis (2-Ethylhexyl)Phthalate	8270	130.00	640.00	<400.00		
Chrysene	8270	<100.00	1,000.00	<400.00		
Fluoranthene	8270	<100.00	960.00	570.00		
Fluorene	8270	<100.00	2,000.00	2,100.00		
2-Methylnaphthalene	8270	<100.00	9,600.00	10,000.00		
Naphthalene	8270	<100.00	2,900.00	3,700.00		
Phenanthrene	8270	<100.00	5,300.00	5,300.00		
Pyrene	8270	110.00	1,500.00	620.00		
Carbon Chain Range (mg/kg)						
	8015m	--	--	--		
PCBs (1) (µg/kg)						
PCB-1260	8080	--	79.00	--		

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

mg/L = milligrams per liter

-- = not analyzed

TRPH = Total Recoverable Petroleum Hydrocarbons

PCBs = Polychlorinated biphenyls

ND = not detected

VOCs = Volatile Organic Compounds

SVOCs = Semi-volatile Organic Compounds

TTL = California Total Threshold Limit Concentration

STL = California Soluble Threshold Limit Concentration

(1) VOCs, SVOCs, and PCBs not listed were not detected

(2) Waste Extraction Test performed on this sample. Result was 1.0 mg/L.

(3) TCLP analysis performed on this sample. Result was <0.1 mg/L.

* Refer to Figure 7 for sample locations

** STL is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.

NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 9
Analytical Data Summary
Remedial Excavation OA1-RE-4 Confirmation Samples
Page 1 of 4

Analyte		Sample Number, Collection Date, Grid Location and Depth			Regulatory Levels
		OA1-GS-41-6' 7/23/97 A.9-32.5 @ 6' bgs*	OA1-GS-42-6' 7/23/97 A.9-31.5 @ 6' bgs*	OA1-GS-43-4' 7/24/97 A.9-30.5 @ 4' bgs*	
TRPH (mg/kg)	418.1	<8.00	<8.00	<8.00	TTLC (mg/kg) 500 STLC (mg/L) 15
Title 22 Metals (mg/kg)					
Antimony	6010	<5.00	<5.00	<5.00	500 15
Arsenic	6010	<1.00	<1.00	<1.00	500 5
Barium	6010	93.00	92.00	100.00	10,000 100
Beryllium	6010	<0.10	<0.10	<0.10	75 0.75
Cadmium	6010	<0.10	<0.10	<0.10	100 1
Chromium (VI)	7196	<0.50	<0.50	<0.50	500 5
Chromium (total)	6010	23.00	26.00	21.00	2,500 5
Cobalt	6010	6.80	4.90	5.60	8,000 80
Copper	6010	9.00	9.90	9.30	2,500 25
Lead (total)	6010	<1.00	<1.00	<1.00	1,000 5
Mercury	7471	<0.01	<0.01	<0.01	20 0.2
Molybdenum	6010	<0.50	<0.50	<0.50	3,500 350
Nickel	6010	8.80	8.50	8.00	2,000 20
Selenium	6010	<1.00	<1.00	<1.00	100 1
Silver	6010	<0.10	<0.10	<0.10	500 5
Thallium	6010	<5.00	<5.00	<5.00	700 7
Vanadium	6010	27.00	30.00	24.00	2,400 24
Zinc	6010	31.00	34.00	35.00	5,000 250
VOCs (1) (µg/kg)					
Trichloroethene	8260	2.60	--	--	2.50
SVOCs (µg/kg)					
Carbon Chain Range (mg/kg)	8015m	--	--	--	ND
PCBs (µg/kg)					
PCBs (µg/kg)	8080	--	--	--	--

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
mg/L = milligrams per liter
bgs = below ground surface

VOCs = Volatile Organic Compounds
SVOCs = Semi-volatile Organic Compounds
TRPH = Total Recoverable Petroleum Hydrocarbons
PCBs = polychlorinated biphenyls

-- = not analyzed
ND = none detected
(1) VOCs not listed were not detected
TTLC = California Total Threshold Limit Concentration
STLC = California Soluble Threshold Limit Concentration

* Refer to Figure 9 for sample locations
** STLC is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.

NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 9
Analytical Data Summary
Remedial Excavation OA1-RE-4 Confirmation Samples
Page 2 of 4

Analyte	EPA Method	Sample Number, Collection Date, Grid Location and Depth				Regulatory Levels	
		OA1-GS-49-12' 7/25/97 A.8/A.9-31.5 @ 12' bgs*	OA1-GS-50-12' 7/25/97 A.8/A.9-30.5 @ 12' bgs*	OA1-GS-55-3' 7/25/97 A.8-32.5 @ 3' bgs*	OA1-GS-56-3' 7/25/97 A.8-30.5 @ 3' bgs*	TTL (mg/kg)	STLC (mg/L)
TRPH (mg/kg)	418.1	<8.00	<8.00	<8.00	<8.00	500	15
Title 22 Metals (mg/kg)							
Antimony	6010	<5.00	<5.00	<5.00	<5.00	500	5
Arsenic	6010	<1.00	<1.00	<1.00	<1.00	10,000	100
Barium	6010	93.00	110.00	82.00	140.00	7.5	0.75
Beryllium	6010	<0.10	<0.10	<0.10	<0.10	100	1
Cadmium	6010	<0.10	<0.10	<0.10	<0.10	500	5
Chromium (VI)	7196	<0.50	<0.50	<0.50	<0.50	2,500	5
Chromium (total)	6010	25.00	29.00	22.00	30.00	8,000	80
Cobalt	6010	6.80	6.80	5.00	6.10	2,500	25
Copper	6010	17.00	17.00	9.50	14.00	1,000	5
Lead (total)	6010	<1.00	<1.00	<1.00	<1.00	20	0.2
Mercury	7471	<0.01	<0.01	<0.01	<0.01	3,500	350
Molybdenum	6010	<0.50	<0.50	<0.50	<0.50	2,000	20
Nickel	6010	14.00	15.00	7.30	10.00	100	1
Selenium	6010	<1.00	<1.00	<1.00	<1.00	500	5
Silver	6010	<0.10	<0.10	<0.10	<0.10	700	7
Thallium	6010	<5.00	<5.00	<5.00	<5.00	2,400	24
Vanadium	6010	31.00	34.00	24.00	34.00	5,000	250
Zinc	6010	45.00	47.00	30.00	46.00		
VOCs (l) (µg/kg)							
Trichloroethene	8260	--	--	4.60	3.80		
SVOcs (µg/kg)							
Carbon Chain Range (mg/kg)	8015m	--	--	ND	ND		
PCBs (µg/kg)	8080	--	--	--	--		

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
mg/L = milligrams per liter
bgs = below ground surface

VOCs = Volatile Organic Compounds
SVOcs = Semi-volatile Organic Compounds
TRPH = Total Recoverable Petroleum Hydrocarbons
PCBs = polychlorinated biphenyls

-- = not analyzed
ND = none detected
(1) VOCs not listed were not detected
TTL = California Total Threshold Limit Concentration
STLC = California Soluble Threshold Limit Concentration

* Refer to Figure 9 for sample locations
** STLC is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.
NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 9
Analytical Data Summary
Remedial Excavation OA1-RE-4 Confirmation Samples
Page 3 of 4

Analyte	EPA Method	Sample Number, Collection Date, Grid Location and Depth				Regulatory Levels	
		OA1-GS-57-6' 7/25/97 A.9-28.5 @ 6' bgs*	OA1-GS-58-10' 7/25/97 A.8/A.9-28.5 @ 10' bgs*	OA1-GS-59-5' 7/25/97 A.9-28.5 @ 5' bgs*	OA1-GS-79-3' 8/12/97 A.6/A.7-34.5 @ 3' bgs*	TTLc (mg/kg)	STLC (mg/L)
TRPH (mg/kg)	418.1	<8.00	<8.00	9.00	<8.00		
Title 22 Metals (mg/kg)							
Antimony	6010	<5.00	<5.00	<5.00	<5.00	500	15
Arsenic	6010	<1.00	<1.00	<1.00	<1.00	500	5
Barium	6010	72.00	92.00	87.00	84.00	10,000	100
Beryllium	6010	<0.10	<0.10	<0.10	<0.10	75	0.75
Cadmium	6010	<0.10	<0.10	<0.10	<0.10	100	1
Chromium (VI)	7196	<0.50	<0.50	<0.50	<0.50	500	5
Chromium (total)	6010	28.00	26.00	20.00	21.00	2,500	5
Cobalt	6010	4.20	6.50	8.80	4.30	8,000	80
Copper	6010	12.00	14.00	12.00	8.60	2,500	25
Lead (total)	6010	<1.00	<1.00	<1.00	<1.00	1,000	5
Mercury	7471	<0.01	<0.01	<0.01	<0.01	20	0.2
Molybdenum	6010	<0.50	<0.50	<0.50	<0.50	3,500	350
Nickel	6010	8.40	13.00	13.00	7.00	2,000	20
Selenium	6010	<1.00	<1.00	<1.00	<1.00	100	1
Silver	6010	<0.10	<0.10	<0.10	<0.10	500	5
Thallium	6010	<5.00	<5.00	<5.00	<5.00	700	7
Vanadium	6010	25.00	31.00	27.00	22.00	2,400	24
Zinc	6010	46.00	49.00	43.00	25.00	5,000	250
VOCs (l) (µg/kg)							
Trichloroethene	8260	--	14.00	<2.50	<2.50		
SVOCs (µg/kg)							
	8270	--	ND	ND	ND		
Carbon Chain Range (mg/kg)							
	8015m	--	--	--	--		
PCBs (µg/kg)							
	8080	--	--	ND	--		

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
mg/L = milligrams per liter
bgs = below ground surface

VOCs = Volatile Organic Compounds
SVOCs = Semi-volatile Organic Compounds
TRPH = Total Recoverable Petroleum Hydrocarbons
PCBs = polychlorinated biphenyls

-- = not analyzed
ND = none detected
(1) VOCs not listed were not detected
TTLc = California Total Threshold Limit Concentration
STLC = California Soluble Threshold Limit Concentration

* Refer to Figure 9 for sample locations
** STLC is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.
NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 9
Analytical Data Summary
Remedial Excavation OA1-RE-4 Confirmation Samples
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Analyte	EPA Method	Sample Number, Collection Date, Grid Location and Depth				Regulatory Levels	
		OA1-GS-80-2' 8/12/97 A.6/A.7-33 @ 2' bgs*	OA1-GS-81-2' 8/12/97 A.7-34.5 @ 2' bgs*	OA1-GS-82-2' 8/12/97 A.6/A.7-35.5 @ 2' bgs*	OA1-GS-83-2' 8/12/97 A.6-34.5 @ 2' bgs*	TTL (mg/kg)	STLC (mg/L)
TRPH (mg/kg)	418.1	<8.00	<8.00	<8.00	<8.00	500	15
Title 22 Metals (mg/kg)							
Antimony	6010	<5.00	<5.00	<5.00	<5.00	500	5
Arsenic	6010	<1.00	<1.00	<1.00	<1.00	10,000	100
Barium	6010	96.00	97.00	96.00	94.00	75	0.75
Beryllium	6010	<0.10	<0.10	<0.10	<0.10	100	1
Cadmium	6010	<0.10	<0.10	<0.10	<0.10	500	5
Chromium (VI)	7196	<0.50	<0.50	<0.50	<0.50	2,500	5
Chromium (total)	6010	19.00	23.00	27.00	26.00	8,000	80
Cobalt	6010	6.30	7.20	5.90	4.70	2,500	25
Copper	6010	9.80	8.00	9.70	10.00	1,000	5
Lead (total)	6010	<1.00	<1.00	<1.00	<1.00	20	0.2
Mercury	7471	<0.01	<0.01	<0.01	<0.01	3,500	350
Molybdenum	6010	<0.50	<0.50	<0.50	<0.50	2,000	20
Nickel	6010	6.00	6.90	7.00	7.50	100	1
Selenium	6010	<1.00	<1.00	<1.00	<1.00	500	5
Silver	6010	<0.10	<0.10	<0.10	<0.10	700	7
Thallium	6010	<5.00	<5.00	<5.00	<5.00	2,400	24
Vanadium	6010	26.00	26.00	30.00	27.00	5,000	250
Zinc	6010	27.00	28.00	34.00	33.00		
VOCs (l) (µg/kg)							
Trichloroethene	8260	--	--	--	--		
SVOCS (µg/kg)							
	8270	--	--	--	--		
Carbon Chain Range (mg/kg)							
	8015m	--	--	--	--		
PCBs (µg/kg)							
	8080	--	--	--	--		

-- = not analyzed
 ND = none detected
 (1) VOCs not listed were not detected
 TTL = California Total Threshold Limit Concentration
 STLC = California Soluble Threshold Limit Concentration

VOCs = Volatile Organic Compounds
 SVOCS = Semi-volatile Organic Compounds
 TRPH = Total Recoverable Petroleum Hydrocarbons
 PCBs = polychlorinated biphenyls

mg/kg = milligrams per kilogram
 µg/kg = micrograms per kilogram
 mg/L = milligrams per liter
 bgs = below ground surface

* Refer to Figure 9 for sample locations
 ** STLC is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.

NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 10
Analytical Data Summary
Remedial Excavation OA1-RE-5 Confirmation Samples

Analyte	EPA Method	Sample Number, Collection Date, Grid Location and Depth						Regulatory Levels TTL (mg/kg) STLC (mg/L)
		OA1-GS-60-6' 7/25/97 A.8-26.5 @ 6' bgs*	OA1-GS-61-10' 7/25/97 A.8/A.9-26.5 @ 10' bgs*	OA1-GS-62-6' 7/25/97 A.9-26.5 @ 6' bgs*	OA1-GS-66-9' 7/28/97 A.8/A.9-24.5 @ 9' bgs*	OA1-GS-67-5' 7/28/97 A.9-24.5 @ 5' bgs*	OA1-GS-67A-5' 8/8/97 A.9-24.5 @ 5' bgs*	
TRPH (mg/kg)	418.1	<8.00	<8.00	13.00	<8.00	19.00	--	
Title 22 Metals (mg/kg)								
Antimony	6010	<5.00	<5.00	<5.00	<5.00	<5.00	--	500 15
Arsenic	6010	<1.00	<1.00	<1.00	<1.00	<1.00	--	500 5
Barium	6010	80.00	110.00	220.00	86.00	130.00	--	10,000 100
Beryllium	6010	<0.10	<0.10	<0.10	<0.10	<0.10	--	75 0.75
Cadmium	6010	<0.10	<0.10	<0.10	<0.10	<0.10	--	100 1
Chromium (VI)	7196	<0.50	<0.50	<0.50	<0.50	<0.50	--	500 5
Chromium (total)	6010	19.00	24.00	49.00	28.00	22.00	--	2,500 5
Cobalt	6010	7.90	15.00	6.60	7.50	7.10	--	8,000 80
Copper	6010	12.00	9.30	13.00	16.00	8.90	--	2,500 25
Lead (total)	6010	<1.00	<1.00	<1.00	<1.00	<1.00	--	1,000 5
Mercury	7471	<0.01	<0.01	<0.01	<0.01	<0.01	--	20 0.2
Molybdenum	6010	<0.50	<0.50	<0.50	<0.50	<0.50	--	3,500 350
Nickel	6010	12.00	9.30	11.00	12.00	7.60	--	2,000 20
Selenium	6010	<1.00	<1.00	<1.00	<1.00	<1.00	--	100 1
Silver	6010	<0.10	<0.10	<0.10	<0.10	<0.10	--	500 5
Thallium	6010	<5.00	<5.00	<5.00	<5.00	<5.00	--	700 7
Vanadium	6010	25.00	29.00	45.00	33.00	22.00	--	2,400 24
Zinc	6010	43.00	38.00	58.00	63.00	37.00	--	5,000 250
VOCs (l) (µg/kg)								
1,1-Dichloroethane	8260	3.00	--	<2.50	--	<2.50	--	
1,1,1-Trichloroethane	8260	5.00	--	<2.50	--	<2.50	--	
1,1,2-Trichloroethane	8260	10.00	--	<2.50	--	<2.50	--	
Trichloroethene	8260	140.00	--	<2.50	--	<2.50	--	
SVOCs (µg/kg)								
8270	ND	--	--	ND	--	ND	--	
Carbon Chain Range (mg/kg)								
8015m	--	--	--	--	--	--	--	
PCBs (µg/kg)								
8080	--	--	--	--	--	--	ND	

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
mg/L = milligrams per liter
-- = not analyzed

TRPH = Total Recoverable Petroleum Hydrocarbons
bgs = below ground surface
ND = none detected
PCBs = polychlorinated biphenyls

VOCs = Volatile Organic Compounds
SVOCs = Semi-volatile Organic Compounds
(1) VOCs not listed were not detected
TTL = California Total Threshold Limit Concentration
STLC = California Soluble Threshold Limit Concentration

* Refer to Figure 10 for sample locations
** STLC is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.

NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 11
Analytical Data Summary
Remedial Excavation OA1-RE-6 Confirmation Samples

Analyte	EPA Method	Sample Number, Collection Date, Grid Location and Depth				Regulatory Levels
		OA1-GS-68-6' 7/28/97 A.7-22.5 @ 6' bgs*	OA1-GS-69-8' 7/28/97 A.8-22.5 @ 8' bgs*	OA1-GS-70-5' 8/5/97 A.9-22.5 @ 5' bgs*	OA1-GS-71-12' 8/5/97 A.7-20.5 @ 12' bgs*	OA1-GS-72-5' 8/5/97 A.9-20.5 @ 5' bgs*
TRPH (mg/kg)	418.1	<8.00	<8.00	76.00	6,000.00	<8.00
Title 22 Metals (mg/kg)						
Antimony	6010	<5.00	<5.00	<5.00	<5.00	<5.00
Arsenic	6010	<1.00	<1.00	<1.00	<1.00	<1.00
Barium	6010	120.00	150.00	110.00	270.00	120.00
Beryllium	6010	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	6010	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium (VI)	7196	<0.50	<0.50	<0.50	<0.50	<0.50
Chromium (total)	6010	23.00	25.00	20.00	32.00	22.00
Cobalt	6010	7.10	18.00	4.40	5.90	8.80
Copper	6010	11.00	13.00	9.40	11.00	9.90
Lead (total)	6010	<1.00	<1.00	<1.00	<1.00	<1.00
Mercury	7471	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	6010	<0.50	<0.50	<0.50	<0.50	<0.50
Nickel	6010	7.50	12.00	7.10	8.90	7.80
Selenium	6010	<1.00	<1.00	<1.00	<1.00	<1.00
Silver	6010	<0.10	<0.10	<0.10	<0.10	<0.10
Thallium	6010	<5.00	<5.00	<5.00	<5.00	<5.00
Vanadium	6010	24.00	30.00	20.00	28.00	23.00
Zinc	6010	42.00	47.00	46.00	53.00	52.00
VOCs (1) (µg/kg)						
Trichloroethene	8260	--	8.90	24.00	130.00	41.00
Total Xylenes	8260	--	<2.50	<2.50	410.00	<2.50
Isopropylbenzene	8260	--	<2.50	<2.50	300.00	<2.50
n-Propylbenzene	8260	--	<2.50	<2.50	330.00	<2.50
1,3,5-Trimethylbenzene	8260	--	<2.50	<2.50	580.00	<2.50
1,2,4-Trimethylbenzene	8260	--	<2.50	<2.50	2,600.00	<2.50
sec-Butylbenzene	8260	--	<2.50	<2.50	340.00	<2.50
p-Isopropyltoluene	8260	--	<2.50	<2.50	340.00	<2.50
n-Butylbenzene	8260	--	<2.50	<2.50	410.00	<2.50
Naphthalene	8260	--	<2.50	<2.50	2,000.00	<2.50
SVOCs (1) (µg/kg)						
Fluorene	8270	--	<100.00	<100.00	2,500.00	<100.00
2-Methylnaphthalene	8270	--	<100.00	<100.00	16,000.00	<100.00
Naphthalene	8270	--	<100.00	<100.00	5,300.00	<100.00
Phenanthrene	8270	--	<100.00	<100.00	5,200.00	<100.00
Carbon Chain Range (mg/kg)						
	8015m	--	--	--	--	--
PCBs (µg/kg)						
	8080	--	--	--	ND	--

TRPH = Total Recoverable Petroleum Hydrocarbons
(1) VOCs and SVOCs not listed were not detected
TTL = California Total Threshold Limit Concentration
STLC = California Soluble Threshold Limit Concentration

* Refer to Figure 11 for sample locations

** STLC is 560 mg/L when TCLP is performed and result is less than 5 mg/L per CCR Title 22.

NOTE: Site-Specific Health-Based Soil Screening Values Presented in Table 12 are Reported in mg/kg

TABLE 12
Site-Specific Health-Based Soil Screening Values for
Organic Constituents Soil Exposure Pathways (mg/kg)
Page 1 of 5

Constituent	Construction Worker Initial Value	Commercial/ Industrial User Initial Value	Final Value
1-butanol	1.98E+04	3.46E+04	1.98E+04
1,1-dichloroethane	2.23E+03	1.10E+03	1.10E+03
1,1-dichloroethene	1.57E+01	4.21E+00	4.21E+00
1,1,1,2-tetrachloroethane	4.98E+02	1.44E+04	4.98E+02
1,1,2-trichloroethane	2.23E+02	1.26E+03	2.23E+02
1,1,2,2-tetrachloroethane	6.25E+01	1.50E+03	6.25E+01
1,2-dibromo-3-chloropropane	2.42E+00	7.47E+01	2.42E+00
1,2-dibromoethane	4.86E+00	1.84E+02	4.86E+00
1,2-dichlorobenzene	NA	2.64E+06	2.64E+06
1,2-dichloroethane	2.06E+02	2.66E+02	2.06E+02
1,2-dichloropropane	3.37E+01	7.25E+00	7.25E+00
1,2-diphenylhydrazine	2.03E+01	2.36E+08	2.03E+01
1,2,3-trichloropropane	2.39E+00	4.08E+01	2.39E+00
1,2,4-trichlorobenzene	1.74E+02	4.74E+07	1.74E+02
1,3-dichloropropene	4.83E+01	6.63E+02	4.83E+01
1,4-dichlorobenzene	4.32E+02	4.37E+04	4.32E+02
2-butanone	3.28E+04	2.35E+06	3.28E+04
2-chlorophenol	8.57E+02	1.17E+06	8.57E+02
2-methylphenol	8.66E+03	7.59E+07	8.66E+03
2-naphthylamine	9.81E+00	1.63E+06	9.81E+00
2,4-dichlorophenol	5.21E+01	2.22E+07	5.21E+01
2,4-dimethylphenol	3.48E+03	4.37E+08	3.48E+03
2,4-dinitrophenol	3.49E+01	7.14E+09	3.49E+01
2,4-dinitrotoluene	3.48E+01	7.62E+06	3.48E+01
2,4,5-trichlorophenol	1.73E+04	2.21E+08	1.73E+04
2,4,6-trichlorophenol	2.52E+02	1.10E+07	2.52E+02
2,6-dinitrotoluene	2.59E+01	4.51E+05	2.59E+01
3,3-dichlorobenzidine	1.47E+01	7.53E+08	1.47E+01
4-chloroaniline	6.93E+01	6.50E+06	6.93E+01
4-methyl-2-pentanone	1.20E+04	6.84E+05	1.20E+04
4-methylphenol	8.69E+01	4.01E+07	8.69E+01
4,4-ddd	1.03E+02	9.97E+08	1.03E+02
4,4-dde	7.28E+01	2.83E+06	7.28E+01
4,4-ddt	1.22E+01	2.26E+08	1.22E+01
acenaphthene	8.10E+03	1.62E+08	8.10E+03
acetone	1.55E+04	4.37E+05	1.55E+04
acrolein	NA	8.05E+01	8.05E+01
acrylonitrile	1.59E+01	7.65E+01	1.59E+01

TABLE 12
Site-Specific Health-Based Soil Screening Values for
Organic Constituents Soil Exposure Pathways (mg/kg)
Page 2 of 5

Constituent	Construction Worker Initial Value	Commercial/ Industrial User Initial Value	Final Value
aldrin	7.32E-01	2.82E+04	7.32E-01
alpha-bhc	3.93E+00	2.32E+05	3.93E+00
aniline	3.10E+03	1.02E+07	3.10E+03
anthracene	4.06E+03	1.37E+10	4.06E+03
aroclor 1016	NA	7.35E+05	7.35E+05
aroclor 1254	8.70E-01	5.69E+05	8.70E-01
benzene	1.43E+02	1.71E+02	1.43E+02
benzidine	3.52E-02	1.55E+02	3.52E-02
benzoic acid	6.96E+04	6.58E+10	6.96E+04
benzo(a)anthracene	1.14E+01	1.13E+09	1.14E+01
benzo(a)pyrene	1.14E+00	9.56E+07	1.14E+00
benzo(b)fluoranthene	1.14E+01	3.19E+08	1.14E+01
benzo(k)fluoranthene	1.14E+01	9.56E+07	1.14E+01
benzyl alcohol	1.73E+04	3.81E+08	1.73E+04
benzyl chloride	1.00E+02	4.03E+03	1.00E+02
beta-bhc	1.38E+01	9.94E+06	1.38E+01
beta-chloronaphthalene	NA	2.32E+07	2.32E+07
bis(2-chloro-1-methylethyl)ether	2.49E+02	2.93E+04	2.49E+02
bis(2-chloroethyl)ether	6.91E+00	6.91E+02	6.91E+00
bis(2-ethylhexyl)phthalate	2.10E+03	3.59E+09	2.10E+03
bromodichloromethane	1.30E+02	2.94E+03	1.30E+02
bromoform	3.34E+02	1.28E+05	3.34E+02
bromomethane	NA	1.15E+02	1.15E+02
carbazole	8.83E+02	6.66E+08	8.83E+02
carbon disulfide	1.43E+03	7.04E+04	1.43E+03
carbon tetrachloride	9.71E+01	1.35E+02	9.71E+01
chlordane	1.04E+00	1.55E+05	1.04E+00
chlorobenzene	NA	2.83E+04	2.83E+04
chloroform	1.49E+02	9.58E+02	1.49E+02
chloromethane	7.43E+02	7.40E+01	7.40E+01
chrysene	1.14E+02	5.06E+10	1.14E+02
cis-1,2-dichloroethene	1.34E+03	7.51E+03	1.34E+03
cumene	3.79E+03	5.73E+04	3.79E+03
dibenzo(a,h)anthracene	3.35E+00	6.34E+11	3.35E+00
dibromochloromethane	1.50E+02	1.54E+02	1.50E+02
dichlorodifluoromethane	2.14E+03	7.01E+02	7.01E+02
dieldrin	1.22E+00	2.33E+04	1.22E+00
diethyl phthalate	1.39E+05	6.03E+09	1.39E+05
di-n-butylphthalate	1.74E+04	4.19E+08	1.74E+04

TABLE 12
Site-Specific Health-Based Soil Screening Values for
Organic Constituents Soil Exposure Pathways (mg/kg)
Page 3 of 5

Constituent	Construction Worker Initial Value	Commercial/ Industrial User Initial Value	Final Value
di-n-octylphthalate	3.49E+02	1.80E+10	3.49E+02
endosulfan	1.46E+02	2.14E+08	1.46E+02
endrin	7.33E+00	1.37E+08	7.33E+00
ethyl chloride	1.42E+05	1.57E+06	1.42E+05
ethylbenzene	NA	7.33E+05	7.33E+05
fluoranthene	6.97E+03	3.03E+10	6.97E+03
fluorene	6.94E+03	1.40E+08	6.94E+03
gamma-bhc	2.32E+01	2.63E+05	2.32E+01
heptachlor	2.87E+00	1.78E+03	2.87E+00
heptachlor epoxide	3.14E-01	1.35E+03	3.14E-01
hexachlorobenzene	9.69E+00	2.80E+03	9.69E+00
hexachlorobutadiene	2.24E+02	7.13E+04	2.24E+02
hexachlorocyclopentadiene	8.87E+01	9.79E+02	8.87E+01
hexachloroethane	1.73E+02	2.39E+05	1.73E+02
indeno(1,2,3-cd)pyrene	1.47E+01	1.23E+11	1.47E+01
isobutyl alcohol	4.81E+04	2.55E+06	4.81E+04
isophorone	1.85E+04	2.92E+07	1.85E+04
methoxychlor	8.71E+01	1.48E+09	8.71E+01
methyl methacrylate	1.06E+03	5.56E+04	1.06E+03
methylene bromide	1.51E+03	2.75E+04	1.51E+03
methylene chloride	1.07E+03	1.26E+03	1.07E+03
methyl-tert-butyl ether	NA	1.39E+06	1.39E+06
n-butylbenzyl phthalate	3.48E+03	6.52E+09	3.48E+03
nitroaniline, o-	8.07E+03	2.45E+06	8.07E+03
nitrobenzene	8.61E+01	1.78E+05	8.61E+01
nitrosodiphenylamine, p-	8.02E+02	1.03E+07	8.02E+02
n-nitrosodimethylamine	2.60E-01	1.38E-02	1.38E-02
n-nitroso-di-n-propylamine	2.48E+00	4.46E+02	2.48E+00
n-nitrosodiphenylamine	1.96E+03	4.80E+09	1.96E+03
o-chlorotoluene	3.14E+03	1.05E+05	3.14E+03
p-chloro-m-cresol	3.48E+04	NA	3.48E+04
pentachlorophenol	3.04E+02	3.09E+07	3.04E+02
phenol	1.04E+04	3.14E+09	1.04E+04
pyrene	2.35E+03	4.11E+10	2.35E+03
styrene	3.02E+05	7.58E+06	3.02E+05
tetrachloroethene	3.36E+02	7.52E+03	3.36E+02
toluene	3.12E+04	2.41E+05	3.12E+04
toxaphene	1.47E+01	9.16E+04	1.47E+01
trans-1,2-dichloroethene	2.68E+03	1.47E+04	2.68E+03

TABLE 12
Site-Specific Health-Based Soil Screening Values for
Organic Constituents Soil Exposure Pathways (mg/kg)
Page 4 of 5

Constituent	Construction Worker Initial Value	Commercial/ Industrial User Initial Value	Final Value
trichloroethene	1.05E+03	1.39E+03	1.05E+03
trichlorofluoromethane	1.03E+04	4.89E+04	1.03E+04
vinyl acetate	5.41E+03	2.31E+05	5.41E+03
vinyl chloride	5.16E+00	1.81E-01	1.81E-01
xylenes	3.26E+04	2.61E+07	3.26E+04

TABLE 12
Site-Specific Health-Based Soil Screening Values for
Inorganic Constituents Soil Exposure Pathways (mg/kg)
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Compound	Initial Value	ILM Background*	Final Value
aluminum	NT	3.63E+04	3.63E+04
antimony	9.05E+00	5.00E+00	9.05E+00
arsenic	8.87E+00	1.40E+01	1.40E+01
barium	2.52E+03	2.81E+02	2.52E+03
beryllium	1.56E+01	7.40E-01	1.56E+01
cadmium	1.64E+01	8.80E-01	1.64E+01
calcium	NT	3.80E+04	3.80E+04
chromium iii	3.22E+04	4.10E+01	3.22E+04
chromium vi	9.73E+01	NA	9.73E+01
cobalt	NT	2.00E+01	2.00E+01
copper	1.26E+03	5.30E+01	1.26E+03
cyanide	6.99E+02	NA	6.99E+02
iron	NT	6.05E+04	6.05E+04
lead	NT	1.11E+02	1.11E+02
mercury	6.78E+00	2.80E-01	6.78E+00
molybdenum	1.24E+03	2.30E+01	1.24E+03
nickel	2.39E+02	2.90E+01	2.39E+02
potassium	NT	8.26E+03	8.26E+03
selenium	1.82E+02	1.24E+03	1.24E+03
silver	1.30E+02	2.39E+02	2.39E+02
sodium	NT	1.96E+03	1.96E+03
thallium	NT	1.10E+01	1.10E+01
titanium	NT	1.95E+03	1.95E+03
vanadium	8.37E+01	8.20E+01	8.37E+01
zinc	8.73E+03	1.98E+02	8.73E+03

NOTES:

*ILM background values provided in Baseline Risk Assessment (G&M 1996).

NT = No Toxicity values available for calculation of HBRG

NA = Not Available.

TABLE 13
Remedial Excavations OA1-RE-4, OA1-RE-5, and OA1-RE-6
Stockpile Soil Disposition Reference

Stockpile	Sample ID	Screening Criteria Summary*		Soil Location			
		Non-Haz Waste	Non-RCRA Haz Waste	North	East	South	West
OA1-RE4-A	OA1-RE4-SP1 PL-GS-3.3'	X		Disposed Off-Site as Non-Hazardous Waste			
OA1-RE4-B	OA1-RE4-SP2			20	A.10/A.11	44	A.5
OA1-RE4-C	not sampled			20	A.10/A.11	44	A.5
OA1-RE4-D	PL-GS-4.2'			20	A.10/A.11	44	A.5
OA1-RE4-E	not sampled			20	A.10/A.11	44	A.5
OA1-RE4-F	not sampled			20	A.10/A.11	44	A.5
OA1-RE4-G1	RR-GS-23.4'			20	A.10/A.11	44	A.4
OA1-RE4-G2	OA1-RE4-SP3			20	A.10/A.11	44	A.4
OA1-RE4-H	PL-GS-5.3.5'			20	A.10/A.11	44	A.4
OA1-RE4-I	not sampled			20	A.10/A.11	44	A.4
OA1-RE4-J	not sampled			20	A.10/A.11	44	A.4
OA1-RE5-A	not sampled			20	A.10/A.11	44	A.4
OA1-RE5-B	not sampled			20	A.10/A.11	44	A.4
OA1-RE5-C	OA1-RE5-SP1 PL-GS-6.2.5'			20	A.10/A.11	44	A.4
OA1-RE5-D	not sampled			20	A.10/A.11	44	A.4
OA1-RE5-E	not sampled			20	A.10/A.11	44	A.4
OA1-RE5-F	not sampled			20	A.10/A.11	44	A.4
OA1-RE5-G	OA1-RE5-SP2			20	A.10/A.11	44	A.4
OA1-RE5-H	not sampled			20	A.10/A.11	44	A.4
OA1-RE5-I	not sampled			20	A.10/A.11	44	A.4
OA1-RE5-J	OA1-RE5-SP3			20	A.10/A.11	44	A.4
OA1-RE6-A	not sampled			20	A.10/A.11	44	A.4
OA1-RE6-B	PL-GS-7.2.5'			20	A.10/A.11	44	A.4
OA1-RE6-C	not sampled			20	A.10/A.11	44	A.4
OA1-RE6-D	OA1-RE6-SP1			20	A.10/A.11	44	A.4
OA1-RE6-E	not sampled			20	A.10/A.11	44	A.4
OA1-RE6-F	not sampled			20	A.10/A.11	44	A.4
OA1-RE6-G	not sampled			20	A.10/A.11	44	A.4
OA1-RE6-H	OA1-RE6-SP2 PL-GS-8.3.5'			18	A.9	19.5	A.8
OA1-RE6-I	not sampled			20	A.10/A.11	44	A.4
OA1-RE6-J	OA1-RE6-SP3 PL-GS-9.3.5'	X		Disposed Off-Site as Non-Hazardous Waste			

* Blank space denotes soil samples which pass all screening criteria.

X Denotes stockpile disposition based on soil sample failing a screening criterion.
bgs = below ground surface

** Refer to Figure 14 for backfill locations